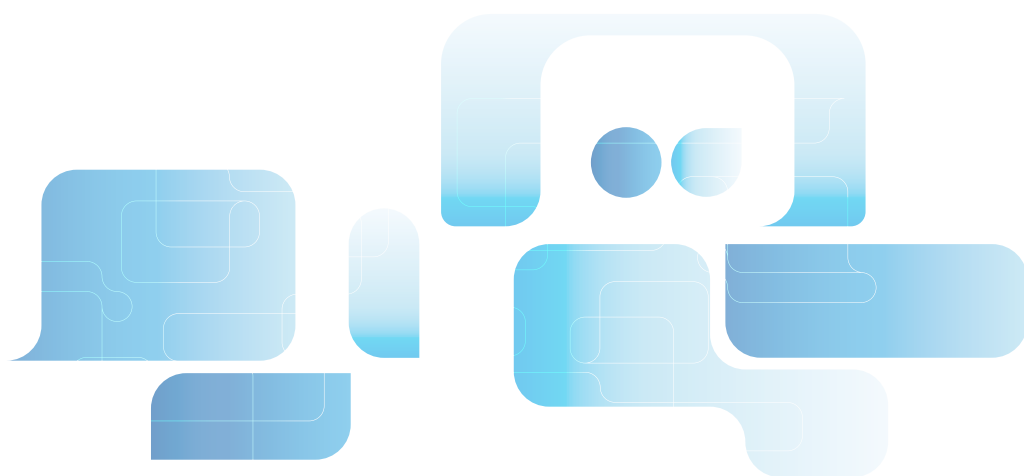




LIFE SCIENCES

PRODUCT COLLECTION





The GVS Group

In over 45 years of history, GVS has evolved from a supplier of components for the healthcare sector to a global group that produces highly technological diversified filtration solutions.

Wide range of products and custom design expertise

GVS produces a wide range of filter materials, filters and off-the-shelf components in all its divisions, enabling its customers to reduce the design time for new product launches.

All the GVS divisions work in highly regulated environments and the Group therefore operates with extremely high-quality standards. Thanks to its research and development centres located all over the world, GVS is also able to offer an extremely efficient and personalized service to meet its customers' needs: from product conception and design to testing and mass production.

Dynamic and flexible structure

GVS has developed a streamlined, dynamic and technologically advanced structure that has made it possible to achieve constant and balanced growth. The Group currently employs a total of 4869 people who work in automated assembly departments, in lines for the production and processing of filter membranes and in class 10,000 and 100,000 cleanrooms.

Global growth

The GVS Group has always paid great attention to research, development and innovation of its products and processes and has shown a strong trend towards development in global markets since its foundation. In addition to the corporate headquarters in Bologna, GVS currently has 19 plants in Italy, United Kingdom, Brazil, United States, China, Mexico, Romania e Puerto Rico, and 29 commercial offices located all over the world. GVS has always adopted a "glocal" approach: it operates locally in contact with its customers, but relies on the strength of a global network.

For more information, visit www.gvs.com



Index

Microbiology	1
Introduction	2
Membranes for Filtration	3
Liquid Media	7
Swabs	15
Buffers	17
Analytical Funnels	18
Microbiological Monitors	19
Filter Holders	20
Manifolds	21
Vacuum Pumps	26
Automatic Device of Filter Membrane	28
Enumeration of Legionella	29
Microbial Count Plate	37
Milk Rapid Test Kit	62
Surface Collection	69
Bacteriological Petri Dishes	71
Inoculation Loops	72
Culture Media	74
Sample Preparation	77
Introduction	78
Syringeless Filters-SEPARA®	82
Syringe Filters-ABLUO®	84
ABLUO Supreme	88
Syringe Filter with Straw	89
Laboratory Syringes	90
Vacuum Filtration- EXTRACTO	92
Centrifuge Filters	97

Bottle-top Filters - ZapCap™	105
Extractor EtBr	106
Filter Holders	107
Micro-Filter Plates	109
Cannula Filter	111
Chromatography	112
HPLC Column	113
New Mobile Phase Filter	172
Multi-FunctionalPurification Plates.....	174
SPE Cartridge	177
QuEChERS	194
Empty Spin Columns with Filters	198
Lysis-Filtration Columns.....	198
Silica Membrane.....	199
Empty Screw Cap Spin Columns	200
Empty spin Chromatography Columns.....	201
Solid Phase Extraction Vacuum Manifolds.....	202
Vacuum Manifolds.....	203
Vacuum Pump	203
Labware.....	204
Cell Culture Units	205
Multi-layers Cell factory.....	206
Accessories of Cell Factory	208
Roller Bottle	209
High Efficiency Erlenmeyer Flask.....	210
Accessories of High Efficiency E-Flask	211
Conical Erlenmeyer Flask	212
Closed Sampling System	213
Baffled Erlenmeyer Flask.....	214

Cell Culture Flask	215
Multi-layer Cell Culture Flasks	217
Cell and Tissue Culture Products	218
Poly-D-Lysine-coated Products.....	220
Ultra-low Adsorption Surface	221
Mixing flask	223
Multi-well Cell Culture Plates	225
Cell Culture Dish	226
Micro Centrifuge Tube.....	228
Centrifuge Tube	232
Tissue Culture Plate Inserts	236
Cell Strainer	238
Cell Scrapers	241
Cell Spreaders.....	242
Flake Microcarrier	243
Spherical Microcarrier	244
Square Media Bottle.....	245
Closed Sampling System	247
Carboy bottle.....	248
General Labware.....	249
Cryogenic Tube.....	250
Screw Cap Micro Tubes.....	252
Transport Tube	253
PCR Consumables Series	255
Cuvettes	259
Centrifuge Tube Stands	260
Freezing Box	261
Cryo Vial Rack.....	261

Cryogenic Storage Box.....	263
Ice Bucket	263
Freezing Box, Carboard	264
Box, with Exchange Holes.....	264
Centrifuge Tubes Rack.....	265
Plastic Pasteur Pipette	267
Collection Plates	274
Silicone Sealing Mats	275
Reagent Reservoirs.....	275
Sterile Sample Bags	276
Liquid Handling	286
FLAME Pette	287
Automatic Pipette	294
Pipette Tips.....	298
Dispenser Tips	311
FLAME Filler	313
Serological Pipette	315
Pipette Controller.....	318
Environmental Monitoring	320
Introduction	321
PTFE.....	324
Glass Microfiber.....	325
Quartz Microfiber	326
Silver	327
Glass Fiber Filters	328
Polycarbonate Track Etched (PCTE)	329
Mixed Cellulose Esters (MCE)	330
BAM Filter Paper.....	331
Extraction thimbles	332

Disc and sheet Membrane 336

Cellulose Acetate (CA) Membrane.....	337
Polyethersulfone (PES) Membrane	338
Mixed Cellulose Esters (MCE) Membrane	339
Speed Pack Sterile MCE Membrane Perforated Ribbons	340
Nylon 66 (NY) Membrane	342
Polytetrafluoroethylene (PTFE) Membrane	344
Regenerated Cellulose (RC) Membrane	345
Polyvinylidene Fluoride (PVDF) Membrane	346
Polycarbonate Track Etched (PCTE) Membrane	347
Polyester Track Etched (PETE) Membrane	351
Quantitative Filter paper	353
Qualitative Filter Paper.....	358
Special Filter Paper	363
Glass Microfiber Filters	364
Quartz Microfiber Filters.....	368
Agriculture Specialty Products.....	370

Reagent&Chemicals 372

Westen&Northen Blot	373
Pure Nitrocellulose Membranes	382
Supported Nitrocellulose Membranes.....	383
Polyvinylidene Fluoride PVDF	384
ECL Substrates	385
Nylon Membrane.....	389
FLAME Beads	391
DNA Spin Column	394
RNA Purification	395
High-Yield Purification.....	395
cfDNA, Methylation Purification	396

High-Throughput Extraction Plates	396
Magnetic Beads	397
Proteinase K.....	397
Prestained Protein Ladder	398
Dry Blend Buffered Packs.....	400
Biological Buffers.....	400
Membrane Application Guideline.....	401



Microbiology

Product collection



Membranes For Filtration

GVS Filter Technology is a fully integrated producer and supplier of microbiological solutions for the laboratory and testing community.

Microbiological testing includes the controlled analysis of water, beverage, food, pharmaceuticals and other consumer products and their processing equipment to evaluate for the presence of micro-organisms that may cause harm to the user or reduce the product quality or performance.

Microbiological testing is a crucial requirement across many industries worldwide where product, process and human health are influenced by the presence of micro-organisms: living bacteria, viruses, yeasts and molds that are too small to be visible to the naked eye.

International test procedures and standard lab practices have been established to provide strict methods for micro-organism analysis and identification.

Micro-organisms can be harmful or beneficial to the product or process under analysis.

Some diseases of human, animals and plants are caused by unwanted bacteria, yeasts and mold. Other beneficial yeasts and molds are responsible for numerous desirable processes in beer, wine, and food production and biotechnology.



GVS products for microbiological testing include applications and testing for:

A Contamination of work surfaces and equipment

A Microbiological analysis of:

- A Potable water
- A Beer and wine
- A Waste water
- A Dairy products
- A Soft drink and concentrates
- A Fruit juices
- A Fermented products

A Detection of:

- A Bacteria, fungi, molds
- A Escherichia coli (E.Coli)
- A Fecal streptococci and fecal coliforms
- A Staphylococci
- A Listeria
- A Enterococci
- A Pseudomonas aeruginosa
- A Legionella

Pore size selection guide

The technical requirements for membranes used in microbiological quality control are subject to strict national and international standards. At the same time the requirements of the market is continually changing as a result of the introduction of new products.

GVS provides a wide and versatile range of membrane filter products to supply the market needs. Our R&D department is continually developing new products for the evolving markets. All GVS membranes consist of high quality materials with a high degree of biocompatibility and are manufactured in ISO certified facilities to ensure reliable performance each and every time.

Test strains: Bacteria/ Yeasts	Pore size [µm]			Used for Validation	Standards
	0,2	0,45	0,8		
Brevundimonas diminuta	x				DSM 1635
Pseudomonas diminuta	x			x	ATCC 19146
Escherichia coli (E. coli)	o	x		x	ATCC 29522
Lactobacillus fermentum	o	x			ATCC 9338
Pseudomonas aeruginosa	x				ATCC 10145
Staphylococcus aureus	o	x		x	ATCC 25923
Enterococcus faecalis	o	x			ATCC 19433
Enterobacter aerogenes	o	x			ATCC 13048
Serratia marcescens	o	x		x	ATCC 14756
Streptococcus faecalis	o	x			ATCC 19433
Pediococcus cerevisiae	o	o	x		ATCC 43013
Pediococcus acidilactici	o	x			ATCC 33314
Legionella pneumophila	x				ATCC 33153
Bacillus subtilis	o	o	x	x	ATCC 6633
Salmonella abony	o	x			NCTC 6017
Saccharomyces cerevisiae	o	o	x	x	DSM 1848
Candida albicans	o	o	x		ATCC 10231
Zygosaccharomyces bailii	o	o	x		ATCC 42476
Aspergillus niger	o	o	x		ATCC 16404
Total count detection		x			

x=recommended pore size

o=alternative pore size



Speed Pack Sterile MCE Membrane Ribbons

SPEED PACK



GVS Speed Pack folded ribbons provide the user with the same quality and reliability as the GVS individually packed MCE membranes. The folded ribbons provide hands-free convenience, reduce laboratory time and boost lab efficiency. Speed Pack have ribbons designed for use with most popular membrane dispensers.

Packaged in 150 count ribbons are available to order in pack size of 150 or 600 (4 x 150). Select either gridded white or black sterilized membranes in a continuous folded ribbon for easy dispensing and convenience.

GVS MCE sterile filtration membranes are ideally used for the microbiological culturing and examination of water, beverages, beer, wine, juices, waste water, pharmaceuticals, food and other critical applications. It boosts a rapid flow rate and high throughput for consistent and uniform results.

- A Available in 0.2 µm, 0.45 µm and 0.8 µm pore sizes
- A Available in White or Black membranes with gridded surfaces
- A Pre-sterilized (gamma irradiation) and ready to use product
- A Comes in box of 150 count
- A Sold in packs of 150 or or 600 (4 x 150), 47 mm. For 50 mm size please contact GVS sales team
- A Compatible with various dispensers (Microsart E-Motion, EZ-

Pak, EZ-Pak Curve, Whatman Membrane-Butler)

A Individually sealed filters are printed with the membrane specification and lot number on the clear cover of each sealed filter

A Membranes are numbered from 1 to 150

White MCE membranes with Black Grids are widely used for general purpose examination and enumeration of microorganisms. Commonly used for water, waste-water, pharmaceutical, medical, food and beverage analysis. The contrasting grid lines facilitate counting of colonies.

Black MCE with White Grids provide color contrast between the filter and white or beige microorganisms without the need for counter-stain. Commonly used for bottled water, carbonated beverages, beer and wine analysis. The contrasting grid lines facilitate counting of colonies.

Speed Pack Ribbons of Membranes

Mixed Cellulose Esters (MCE) membrane, Sterile Ordering information

Dimensions Packaging	47 mm 150/pk	47 mm 150/pk	47 mm 600/pk	47 mm 600/pk
Color	white	black	white	black
0.2 µm	SPNCW02BG47S	on demand	SPNCW02BG47S6	on demand
0.45 µm	SPNCW04BG47S	SPNCB04WG47S	SPNCW04BG47S6	SPNCB04WG47S6
0.8 µm	SPNCW08BG47S	SPNCB08WG47S	SPNCW08BG47S6	SPNCB08WG47S6

Funnel Ordering information

Code	Description	Quantity
FUNNELA100SR	PP Funnel 100 ml sterile for Speed-Pack	150
FUNNELA250SR	PP Funnel 250 ml sterile for Speed-Pack	150



Sterile MCE Membranes single-packed



GVS Mixed Cellulose Esters (MCE) Filtration Membrane is an unsupported, hydrophilic membrane. Its rapid flow rate and high throughput make it ideal for use in bioburden and sterility testing.

Characteristics

- A High flow rate: fast filtration rates
- A Uniform pore structure: consistent flow and diffusion rates
- A Lot-to-lot consistency
- A Microbiological and particulate analysis
- A Black for food and beverage applications

Consistent Uniformity Improves Control and Performance

Packaged individually for convenience, handling, economy and integrity, each 1+PAC includes a 47 mm presterilized MCE membrane filter. They are available with or without an absorbent nutrient pad in either white or black. This all-in-one pack permits individual testing, eliminating the possibility of contaminating a large supply of presterilized filters. Filters, pads and envelopes are presterilized by gamma irradiation.

White 1+ PAC

White gridded discs are designed for the recovery and retention

of E. coli bacteria in water / waste-water analysis as well as other microbiological tests. The filters are certified to meet specifications listed in APHA Standard Methods. The 1+PAC is also ideal for sterility and bioburden testing in QC/QA laboratories.

Black 1+ PAC

GVS offers black MCE filters specifically manufactured and tested for quality assurance testing in food and beverage analysis. Without proper microbiological testing, the taste, odor and appearance of the final product can be ruined, resulting in lost production time, expensive in-line cleanup and end product loss due to spoilage. The black filters provide a superb contrast for early and accurate colony counting for total bacteria, yeast and mold organisms. The filters are certified to meet specifications listed in the APHA Standard Methods. For a certificate of analysis, please request it on your purchase order.

Performance

Pore Size (µm)	Flow Time (s)	Volume/Vacuum (ml/in Hg)	Flow Rate (ml/min/cm² @ 10 psi)	Bubble Point (psi)
0.2	60-136	250/20	11.70-26.51	52-65
0.45	23-46	250/20	34.58-69.16	30-42
0.8	5-18	250/20	88.37-318.13	11-19

Mixed Cellulose Esters membrane - Sterile, white and black

Ordering information

Pore sizes	Individually Packaged Without Pad Gridded				Individually Packaged with Pad Gridded		
	Dimensions Packaging	47 mm 250/pk	47 mm 250/pk	47 mm 1000/pk	47 mm 1000/pk	47 mm 100/pk	47 mm 1000/pk
	Color	white	black	white	black	white	black
0.2 µm		1216732		1216737		1214872	
0.45 µm		1216733	1216730	1216738	1216735	1215237	1214866
0.8 µm		1216734	1216731		1216736	1225460	



Nutrient Liquid Media for Culturing and Enumeration

GVS provides an extensive range of culture broths and solutions for the cultivation, detection and enumeration of bacteria, yeast, fungi, viruses, pathogens and molds. Each nutrient rich liquid media is specifically developed for use in the analysis of drinking water, surface water, milk, juice, beverages, sugar based drinks, food and pharmaceutical samples. These ready to use liquid medias are packaged in individual pre-portioned ampoules for ease of use. All liquid medias undergo detailed quality control checks in accordance with standard methods, guaranteeing uniform preparation every time. Comprehensive end product testing ensures a stable sterile liquid media for optimal culture growth.

Quick Media Selection Guide for Common Evaluation Processes and Micro-Organisms

Water, wastewater and purified water

Quality control systems for wastewater analysis and production systems using water. Typical organisms include Pseudomonads, Escherichia coli, Staphylococci, spore formers, yeasts and molds.

Selective microorganism	Positive test organism	Media	Product No.
Acid-tolerant micro-organisms	Lactobacillus fermentum (ATCC 9338)	Orange Serum Broth	10496104
Lactic-acid bacteria	Candida albicans (ATCC 10231)		
Aerobic bacteria	Escherichia coli (E.coli) (ATCC 25922)	HPC Broth	10496164
		HPC Broth with TTC	10496151
		M-TGE Total Count Broth	10496102
		Total Count Media with TTC	10496113
Total Coliforms and Escherichia coli	Escherichia coli (E.coli) (ATCC 25922)	Brilliant Green Bile Broth	10496710
		EC Broth	10496714
		M-Endo Coliform Broth	10496103
		M-FC Broth	10496124
		M-FC Broth with Rosolic Acid	10496114
		MI Broth	10496192
		MI Agar	10496847
		EC Broth with MUG	10496709
		M-TGE Total Count Broth	10496102
Enterococci	Enterococci faecalis (ATCC 19433)	Enterococcus Broth	10496120
Fecal Streptococci	Escherichia coli (E.coli) (ATCC 25922)	KF-Streptococcus Broth	10496125
	Streptococcus faecalis (ATCC 19433)		
Pseudomonas aeruginosa	Pseudomonas aeruginosa (ATCC 10145)	Cetrimide Broth	10496146
		Pseudomonas Broth	10496119
Staphylococci	Staphylococcus aureus (ATCC 25923)	Mannitol Salt Broth	10496121
Yeast and Mold	Zygosaccharomyces bailii (ATCC 58445)	PRY Broth (Preservative Resistant Yeast)	10496106
	Candida albicans (ATCC 10231)		10496116
		M-Green Select Broth	10496101
		M-Green Yeast and Mold Broth	

Soft drinks, fruit juices, concentrates and sugar products

Due to different pHs and carbonation levels the nutrient media for detection of these contaminants are very specific.

Selective microorganism	Positive test organism	Media	Product No.
Acid-tolerant micro-organisms	Lactobacillus fermentum (ATCC 9338)	Orange Serum Broth	10496104
Lactic-acid bacteria	Candida albicans (ATCC 10231)	Wallerstein Differential Broth (WLD)	10496109
Lactobacillus, Oenococcus (product spoiling organisms)			
Aerobic bacteria	Escherichia coli (E.coli) (ATCC 25922)	HPC Broth	10496164
		HPC Broth with TTC	10496151
		M-TGE Total Count Broth	10496102
		Total Count Media with TTC	10496113
Total Coliform and Escherichia coli	Saccharomyces cerevisiae (ATCC 9763)	Brilliant Green Bile Broth	10496710
		M-Endo Coliform Broth	10496103
		MI Broth	10496192
		MI Agar	10496847
		EC Broth with MUG	10496709
		M-TGE Total Count Broth	10496102



Selective microorganism	Positive test organism	Media	Product No.
Pseudomonas aeruginosa	Pseudomonas aeruginosa (ATCC 10145)	Cetrimide Broth Pseudomonas Broth	10496146 10496119
Yeast and Mold	Zygosaccharomyces bailii (ATCC 58445) Candida albicans (ATCC 10231)	PRY Broth (Preservative Resistant Yeast) M-Green Select Broth M-Green Yeast and Mold Broth	10496106 10496116 10496101
Staphylococci	Staphylococcus aureus (ATCC 25923)	Mannitol Salt Broth	10496121

Beer and Wine

Beer quality control is focused on beer spoiling bacteria like Lactobacilli and Pediococci as well as wild yeast.

Wine quality control is focussed on taste spoiling organisms including acid tolerant species like acetic acid bacterial and lactic acid bacterial as well as yeast and mold.

Selective microorganism	Positive test organism	Media	Product No.
Acetobacter		Orange Serum Broth (add 5-8% ethanol)	10496104
Aerobic bacteria	Escherichia coli (E.coli) (ATCC 25922)	Total Count Media with TTC	10496113
Bacteria in fermentation processes		Wallerstein Differential Broth (WLD)	10496109
Total Coliform and Escherichia coli	Saccharomyces cerevisiae (ATCC 9763) Escherichia coli (E.coli) (ATCC 25922)	M-Endo Coliform Broth M-Endo Coliform Broth MI Broth MI Agar	10496103 10496103 10496192 10496847
Lactobacilli, Pediococci (beer spoiling organisms)	Lactobacillus fermentum (ATCC 9338) Candida albicans (ATCC 10231)	Orange Serum Broth Wallerstein Differential Broth (WLD)	10496104 10496109
Yeast and Mold	Zygosaccharomyces bailii (ATCC 58445) Saccharomyces cerevisiae (ATCC 9763)	PRY Broth (Preservative Resistant Yeast) Wallerstein Nutrient Broth (WLN)	10496106 10496108

Dairy Products

Dairy quality control is focused on the presence of bacteria, yeasts and mold and milk borne diseases. E.coli and Streptococci in dairy products may cause illness or spoilage. Other beneficial bacteria may be specifically added to milk for fermentation to produce products like yogurt and cheese.

Selective microorganism	Positive test organism	Media	Product No.
Aerobic bacteria	Escherichia coli (E.coli) (ATCC 25922)	HPC Broth HPC Broth with TTC M-TGE Total Count Broth Total Count Media with TTC	10496164 10496151 10496102 10496113
Total Coliform and Escherichia coli	Saccharomyces cerevisiae (ATCC 9763) Escherichia coli (E.coli) (ATCC 25922)	M-Endo Coliform Broth Brilliant Green Bile Broth EC Broth MI Broth MI Agar	10496103 10496710 10496714 10496192 10496847
Enterococci	Enterococci faecalis (ATCC 19433)	Enterococcus Broth	10496120
Fecal Streptococci	Streptococcus faecalis (ATCC 19433)	KF-Streptococcus Broth	10496125
Lactobacillus	Lactobacillus plantarum (ATCC 8014) Lactobacillus fermentum (ATCC 9338)	MRS Broth Wallerstein Differential Broth (WLD)	10496112 10496109

Food

Quality control systems for raw materials and final product. Typical organisms include Pseudomonads, Escherichia coli, Staphylococci, Streptococci, yeasts and molds.

Selective microorganism	Positive test organism	Media	Product No.
Acid-tolerant micro-organisms	Lactobacillus fermentum (ATCC 9338) Candida albicans (ATCC 10231)	Orange Serum Broth	10496104
Aerobic, facultative, anaerobic bacteria and fungi	Escherichia coli (E.coli) (ATCC 25922)	Total Count Media with TTC Trypticase Soy Broth (TSB)- Single Strength Trypticase Soy Broth (TSB) - Double Strength	10496113 10496707 10496708
Total Coliform and Escherichia coli	Saccharomyces cerevisiae (ATCC 9763) Escherichia coli (E.coli) (ATCC 25922)	M-Endo Coliform Broth Brilliant Green Bile Broth EC Broth EC Broth with MUG MI Broth MI Agar	10496103 10496710 10496714 10496709 10496192 10496847
Enterococci	Enterococci faecalis (ATCC 19433)	Enterococcus Broth	10496120
Fecal Streptococci	Streptococcus faecalis (ATCC 19433)	KF-Streptococcus Broth	10496125
Lactobacillus, especially in meat	Lactobacillus plantarum (ATCC 8014) Lactobacillus fermentum (ATCC 9338)	MRS Broth	10496112
Pseudomonas aeruginosa	Pseudomonas aeruginosa (ATCC 10145)	Cetrimide Broth Pseudomonas Broth	10496146 10496119
Yeast and Mold	Zygosaccharomyces bailii (ATCC 58445) Saccharomyces cerevisiae (ATCC 9763)	PRY Broth (Preservative Resistant Yeast) Wallerstein Nutrient Broth (WLN)	10496106 10496108

Pharmaceuticals, Raw Materials, Cosmetics

Quality control systems for raw materials and production systems using water. Typical organisms include Pseudomonads, Escherichia coli, Staphylococci, Streptococci, yeasts and molds.

Selective microorganism	Positive test organism	Media	Product No.
Aerobic, facultative, anaerobic bacteria and fungi	Escherichia coli (E.coli) (ATCC 25922)	Total Count Media with TTC Trypticase Soy Broth (TSB)- Single Strength Trypticase Soy Broth (TSB) - Double Strength	10496113 10496707 10496708
Total Coliform and Escherichia coli	Saccharomyces cerevisiae (ATCC 9763) Escherichia coli (E.coli) (ATCC 25922)	M-Endo Coliform Broth MI Broth MI Agar	10496103 10496192 10496847
Enterococci	Enterococci faecalis (ATCC 19433)	Enterococcus Broth	10496120
Fecal Streptococci	Streptococcus faecalis (ATCC 19433)	KF-Streptococcus Broth	10496125
Pseudomonas aeruginosa	Pseudomonas aeruginosa (ATCC 10145)	Cetrimide Broth Pseudomonas Broth	10496146 10496119
Staphylococci	Staphylococcus aureus (ATCC 25923)	Mannitol Salt Broth	10496121
Yeast and Mold	Zygosaccharomyces bailii (ATCC 58445) Saccharomyces cerevisiae (ATCC 9763)	PRY Broth (Preservative Resistant Yeast) Wallerstein Nutrient Broth (WLN)	10496106 10496108



Nutrient Liquid Media



2 mL ampouled media

Features & Benefits

- A Wide range of products satisfies even special customer requirements
- A Optimal media stability, sterility, and reproducibility
- A Less time-consuming, higher productivity
- A Batch-specific quality certificate in each pack

Liquid Media Descriptions

Brilliant Green Bile Broth 2%

Brilliant Green Bile Broth is used to detect coliforms in water, milk and other samples. BGGB contains two inhibitors of both gram-positive and selected gram-negative organisms, namely, oxgall and brilliant green dye. Fermentation is detected by gas production.

Cetrimide Broth

Cetrimide Broth is used for selective cultivation of *Pseudomonas aeruginosa*. *Pseudomonas aeruginosa* is characterized by the production of pyocyanin (a blue green, water soluble, non-fluorescent, phenazine pigment) which is stimulated by the inclusion of magnesium chloride and potassium sulfate in the broth. Cetrimide (N-cetyl-NNN-trimethylammonium bromide) is added to inhibit bacteria other than *Pseudomonas aeruginosa*. Its action as a quaternary ammonium cationic detergent causes nitrogen and phosphorous to be released from bacterial cells other than *Pseudomonas aeruginosa*.

EC Broth

EC (*Escherichia coli*) Broth is used to detect coliforms and *E. coli*. EC Broth contains casein peptone as a source of nutrients. Lactose provides the carbohydrate fermented by coliform bacteria and *Escherichia coli*. In addition, lactose-positive bacteria metabolize lactose with gas formation. Gram-positive bacteria are inhibited by the mixture of bile salts.

EC Broth with MUG

EC Broth with MUG is used to detect *Escherichia coli* in water, milk and food. The presence of fluorescence using a long-wave UV light source confirms the presence of *Escherichia coli* and no further confirmation is required. MUG detects anaerogenic strains, which may not be detected in the conventional procedure. Lactose is a source of energy. Casein peptone provides additional nutrients. The mixture of bile salts is inhibiting for gram-positive bacteria, particularly bacilli and fecal streptococci. The substrate 4-methylumbelliferyl-b-D-glucuronide is hydrolyzed by an enzyme, b-glucuronidase, possessed by most *Escherichia coli* and a few strains of *Salmonella*, *Shigella* and *Yersinia*, to produce a fluorescent end product, 4-methylumbelliferone.

Liquid Media

Ready-to-use media considerably reduces the preparation time in quality control laboratories and also effectively reduces the risks of cross contamination. GVS Life Sciences is cooperating closely with quality assurance managers in the industry in the development of its own media and test kits.

This intensive product development has produced a range of products that is being used to monitor production plants and conduct microbiological checks on raw materials through to final product release in laboratories.

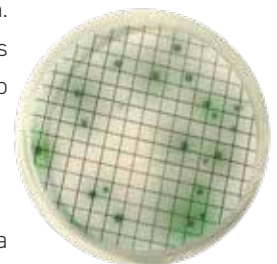
Typical Applications

Microbiological analysis of:

- A Drinking water
- A Surface water
- A Recreational water
- A Purified water
- A Beverage distilled and non distilled



Brilliant Green Bile Broth



Pseudomonas Media: Typical Growth of *Pseudomonas aeruginosa* ATCC 10145



EC-Broth: Vial Left: Control; Vial Right: Broth inoculated with *Escherichia coli* ATCC 25922



Liquid Media Descriptions

Enterococcus Broth

Enterococcus Broth is a modified version of the improved media described by Slanetz and Bartley with triphenyltetrazolium chloride (TTC). The membrane filtration method is simple to perform, does not require confirmation and permits a direct count of enterococci in 48 hours.

Heterotrophic Plate Count (HPC) Broth with or without TTC

HPC Broth and HPC Broth with TTC Heterotrophic Plate Count (HPC) Broth is used to determine live heterotrophs in drinking water and other media at incubation temperatures of 35°C. All bacteria grow on HPC with indicator media and produce a red color. This is a result of the precipitation of formazan following the reduction of 2,3,5- TTC by bacteria.

KF-Streptococcus Broth

KF-Streptococcus Broth is selective for the determination of fecal streptococci in polluted surface waters. Maltose and lactose are fermentable carbohydrates, sodium azide is the selective agent and brom cresol purple is the indicator dye.

Mannitol Salt Broth

Mannitol Salt Broth is used to detect presumptive pathogenic Staphylococci. Because of the amount of peptones and beef extract, Mannitol Salt is a nutrient rich medium. Most bacteria (other than staphylococci) are inhibited by the high concentration of sodium chloride. Organisms capable of fermenting mannitol, e.g., Staphylococcus aureus, cause a pH change in the media. With phenol red as the pH indicator the colonies appear with a yellow coloration.



M-Endo Coliform Broth

M-Endo Coliform Broth

M-endo Broth is used to detect coliform in water samples. M-Endo is a red colored media, which needs to be stored in the dark to prevent discoloration. Gram-positive bacteria are inhibited on this media by the deoxycholate and lauryl sulfate. The addition of ethanol increases the antibacterial nature of the formulation. Lactose fermenting organisms form aldehydes, which react with Schiff's reagent (basic fuchsin and sodium sulfite) to give red colored zones around the colonies. Coliform colonies are therefore red with a characteristic metallic sheen.

M-FC Broth

M-FC (fecal coliform) Broth allows the development of fecal coliforms at elevated temperatures (44.5°C).

M-FC with Rosolic Acid

M-FC with Rosolic Acid acts and functions in the same way as M-FC Broth. Rosolic acid inhibits bacterial growth in general, except for fecal coliforms.

M-Green Yeast and Mold Broth and M-Green Yeast and Mold Agar

M-Green Yeast and Mold Broth is used to detect yeast and mold in beverages and food. M-Green Yeast and Mold Broth is an improved modification of the liquid media. The addition of bromocresol green, which diffuses into fungal colonies as an alkaline reaction, allows them to be easily identified. Metabolic by-products from the developing colonies diffuse into the surrounding medium, further reducing the pH which aids in the inhibition of bacterial growth, but also produces an acid reaction that causes residual bromocresol green to change to yellow.



M-Green Yeast and Mold Broth:
Typical Growth of Candida
Albicans ATCC10231 on a Black
Membrane

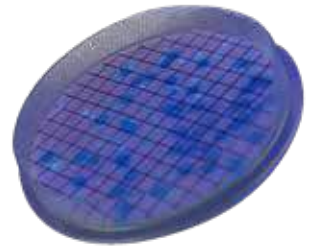
M-Green Select Broth

M-Green Select Broth was developed to improve efficiency of detection and enumeration of fungi in sugar based drinks using the membrane filtration method. This medium has a low pH, which inhibits bacterial growth. The addition of chloramphenicol further inhibits the growth of bacteria to allow for the development and enumeration of yeast and mold.



MI Broth and MI Agar

MI Broth detects the presence of coliform bacteria by the production of β -galactosidase, which cleaves the substrate MUGal to produce 4-methylumbelliferone, which fluoresces on exposure to UV light. Non-coliforms do not produce this enzyme and therefore do not fluoresce on the medium. *Escherichia coli* is detected by the compound IBDG. The β -glucuronidase produced by *Escherichia coli* cleaves the substrate to produce a blue indigo color in the colonies. As *Escherichia coli* is also a total coliform, and also produces β -galactosidase, it will also fluoresce. The antibiotic cefsulodin is present to inhibit the growth of gram-positive bacteria and some non-coliform gram-negative bacteria that can cause false positive reactions.



MI-Media: Pure Culture of *Escherichia coli* ATCC 25922 with UV Light

MRS Broth

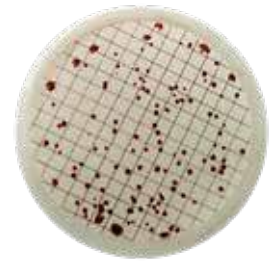
MRS medium supports luxuriant growth of all lactobacilli, even the slow growing species.

M-TGE Total Count Media

All bacteria develop on TGE media and produce a range of different colored and sized colonies.

Orange Serum Media

Orange Serum Broth is used to detect aciduric microorganisms. Organisms known to grow in single strength and concentrated juices are lactic acid and acetic acid bacteria and yeast. Lactobacilli, *Leuconostoc* and yeast have all been identified as spoilage organisms by numerous authors. Orange serum at pH 5.4 to 5.6 has been reported to yield maximum counts of all types of spoilage organisms in mixed cultures and in single culture comparison tests.



Total Count Media with Indicator. *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* ATCC 25923 can be easily detected according to their red to pink colonies

PRY Broth

Preservative Resistant Yeast Broth is a low pH selective medium for the detection of spoilage microorganism in beverages and water.

Pseudomonas Broth

Pseudomonas aeruginosa is characterized by the production of pyocyanin (a blue green, water soluble, non-fluorescent, phenazine pigment) which is stimulated by the inclusion of magnesium chloride and potassium sulfate in the broth. Irgasan, an antimicrobial agent, selectively inhibits gram-positive and gram-negative bacteria other than pseudomonads. Glycerol both serves as an energy source and helps in the promotion of pyocyanin.

Total Count Media with TTC

All bacteria develop on Total Count Media with indicator and produce a red color as a result of the precipitation of formazan following the reduction of 2,3,5-TTC by bacteria.

Trypticase Soy Broth – Single Strength

General purpose medium used in qualitative procedures for the cultivation of fastidious and non-fastidious microorganisms. Trypticase Soy Broth – Single Strength complies with the demands of the DIN Norm 10167 for the detection of *Escherichia coli* serotype 0157:H7 in foods and FDA-BAM for the detection of enterohemorrhagic *Escherichia coli* (EHEC). In addition the media conforms to the formula of the US Pharmacopoeia.



Trypticase Soy Broth Double Strength

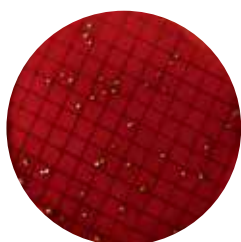
Trypticase Soy Broth – Double Strength

TSB is a medium that will support the growth of a wide variety of microorganisms including aerobic, facultative, and anaerobic bacteria and fungi.

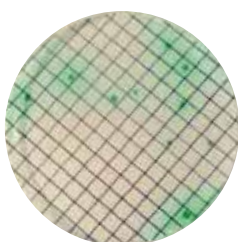
Wallerstein Nutrient Broth (WL) and WL Differential Broth (WLD)

WL Nutrient Broth is for the cultivation and enumeration of yeast and WL Differential Broth is for determination of bacterial count. Use of the medium at pH 5.5 and incubation at 25°C will give reliable counts for brewer's yeast. Adjustment of the pH to 6.5 and incubation at 30°C allows for the selective growth of baker's and distiller's yeast.

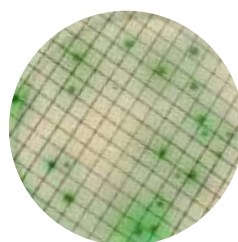
Liquid Media Selection Guide



M-Endo Coliform Broth
Cat. No. 10 496 103
Coliform bacteria
E. coli ATCC 25922,
E. aerogenes ATCC 13048,
P. aeruginosa ATCC 10145



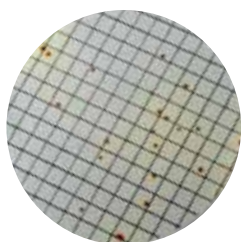
Cetrimide Broth
Cat. No. 10 496 146
Pseudomonas aeruginosa
P. aeruginosa ATCC 10145



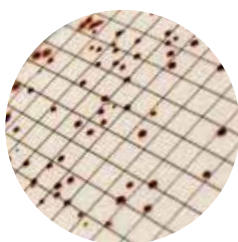
Pseudomonas Broth
Cat. No. 10 496 119
Pseudomonas
P. aeruginosa ATCC 10145,
P. aeruginosa ATCC 27853



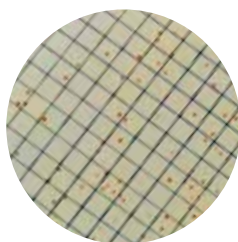
PRY Broth
Cat. No. 10 496 106
PRY
Z. Bailii ATCC 58445



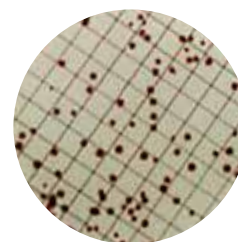
Enterococcus Broth
Cat. No. 10 496 120
Enterococci
E. faecalis ATCC 19433



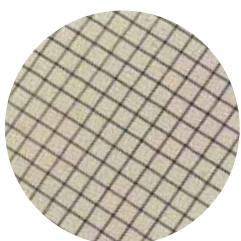
HPC Broth with TTC
Cat. No. 10 496 151
Heterotrophic Plate Count
E. coli ATCC 25922, *E. faecalis*
ATCC 29212, *S. aureus* ATCC 25923



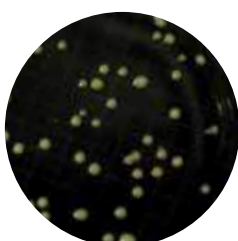
KF-Streptococcus Broth
Cat. No. 10 496 125
Fecal streptococci
E. faecalis ATCC 29212,
E. faecalis ATCC 19433



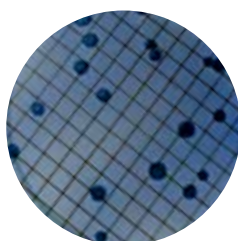
Total Count Media with TTC
Cat. No. 10 496 113
All aerobic bacteria
E. coli ATCC 25922, *S. aureus* ATCC 25923,
P. aeruginosa ATCC 10145,
E. faecalis ATCC 29212



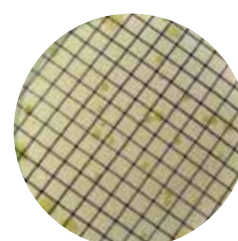
Mannitol Salt Broth
Cat. No. 10 496 121
Staphylococci
S. aureus ATCC 25923,
S. epidermidis ATCC 12228



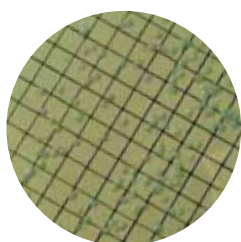
Wallerstein Nutrient Broth
Cat. No. 10 496 108
Saccharomyces cerevisiae
E. coli ATCC 25922,
L. fermentum ATCC 9338,
S. cerevisiae ATCC 9763



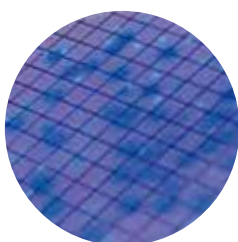
M-FC Broth/M-FC Broth
with Rosolic Acid Cat.
No. 10 496 124/114 Fecal coliforms
E. coli ATCC 25922,
E. aerogenes ATCC 13048



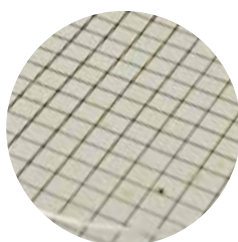
M-TGE Total Count Media
Cat. No. 10 496 102
All aerobic bacteria
E. coli ATCC 25922,
S. aureus ATCC 25923



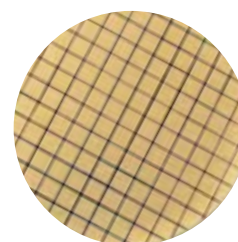
M-Green Yeast and Mold
Cat. No. 10 496 101
Yeast and Mold
C. albicans ATCC 10231,
S. cerevisiae ATCC 9763



MI Broth and MI Agar
Cat. No. 10 496 192/847
Coliform bacteria and *Escherichia coli*
E. coli ATCC 25922,
E. aerogenes ATCC 13048



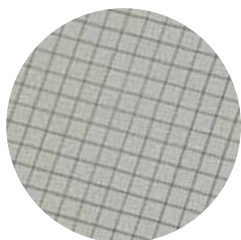
MRS Broth
Cat. No. 10 496 112
Lactobacilli
L. plantarum ATCC 8014



Orange Serum Media
Cat. No. 10 496 104 Various
L. acidophilus ATCC 314,
S. cerevisiae ATCC 9763



Liquid Media Selection Guide



Wallerstein Differential Broth
Cat. No. 10 496 109
Lactobacillus plantarum
E. coli ATCC 25922,
L. fermentum ATCC 9338,
S. cerevisiae ATCC 9763



Trypticase Soy Broth
Single Strength
Cat. No. 10 496 707
B. subtilis ATCC 6633,
C. albicans ATCC 10231,
E. coli ATCC 25922,
S. aureus ATCC 25923



Trypticase Soy Broth
Double Strength
Cat. No. 10 496 708
B. subtilis ATCC 6633,
C. albicans ATCC 10231,
E. coli ATCC 25922,
S. aureus ATCC 25923



Brilliant Green Bile Broth 2%
Cat. No. 10 496 710
Coliform bacteria
E. coli ATCC 25922,
E. aerogenes ATCC 13048



EC Broth
Cat. No. 10 496 714
Coliform bacteria
E. coli ATCC 25922,
E. aerogenes ATCC 13048



EC Broth with MUG
Cat. No. 10 496 709
Escherichia coli
E. coli ATCC 25922



Hygiene SwabCheck
Cat. No. 10 498 407



Coliform SwabCheck
Cat. No. 10 498 406



Listeria SwabCheck
Cat. No. 10 498 408



Buffer Swabs
Cat. No. 10 498 305/10 498 306



Neutralizing Buffer Swabs
Cat. No. 10 498 303/10 498 304



Legend



Water



Dairy



Beverages



Pharmaceutical



Food



Cosmetics



Wastewater

2 mL Ampoules

Ordering information

Product Code	Description	Packaging
10496146	Cetrimide Broth	50/pk
10496120	Enterococcus Broth	50/pk
10496164	Heterotrophic Plate Count (HPC) Broth with TTC	50/pk
10496151	HPC Broth	50/pk
10496125	KF-Streptococcus Broth	50/pk
10496121	Mannitol Salt Broth	50/pk
10496103	M-Endo Coliform Broth	50/pk
10496124	M-FC media	50/pk
10496114	M-FC Broth with rosolic acid	50/pk
10496116	M-Green Select Broth	50/pk
10496101	M-Green Yeast and Mold Broth	50/pk
10496192	MI-Broth Media	50/pk
10496112	MRS Broth	50/pk
10496102	M-TGE Broth	50/pk
10496104	Orange Serum Broth	50/pk
10496106	PRY Broth	50/pk
10496119	Pseudomonas Broth	50/pk
10496113	Total Count Broth with TTC	50/pk
10496108	Wallerstein Broth	50/pk
10496109	Wallerstein Differential Broth	50/pk

9 mL Vials

Ordering information

Product Code	Description	Packaging
10496710	Brilliant Green Bile Bottled Broth, with Durham tubes	20/pk
10496714	EC Bottled Broth, with Durham tubes	20/pk
10496709	EC with MUG, Bottled Broth	20/pk

Bottled Media

Ordering information

Product Code	Description	Packaging
10496851	MI Media, Bottled Broth, 50 mL	1/pk
10496847	MI Media, Bottled Agar, 50 mL	1/pk
10496705	M-Green Yeast and Mold Bottled Agar, 100 mL	1/pk
10496707	Trypticase Soy Broth (TSB) Single strength, Bottled Broth, 100 mL	1/pk
10496708	Trypticase Soy Broth (TSB) Double strength, Bottled Broth, 100 mL	1/pk
10496744	ColiCheck with MUG, Presence-Absence (P-A) Test Kit with Sample Bottles	30/pk





SwabCheck™



SwabCheck: how to use

Open the sterile pack, remove the swab and wipe it over an area of about 10 x 10 cm. Then twist off the cap of the medium tube and insert the swab so that the cap fits tightly. Label the sample tube and incubate at the appropriate temperature.

A change in color indicates the presence of the microorganism in question. The quicker the color change occurs, the higher the bioburden. If no color change has been observed after the maximum incubation period has elapsed, then the corresponding microorganism is not present. GVS Life Sciences offers SwabCheck in packs of 25 pieces. With a shelf-life of 12 months.

Neutralizing Buffer Swabs

Neutralizing buffer swabs are used in the monitoring of surfaces for total bacterial count. Neutralizing buffer inactivates the bactericidal and bacteriostatic effects of chlorine and quaternary ammonium detergents. Without exhibiting toxic effects on microorganisms. This permits the transfer of swabbed organisms to the laboratory without loss in viability. Neutralizing buffer is not designed to culture and enumerate microorganisms.

Buffer Swabs

Buffer Swabs are used for the collection of surface contamination from flat or convoluted surfaces prior to transport to a laboratory for culture and enumeration. Buffer swabs contain no bacteriostatic or bactericidal compounds and cannot suppress the action of detergents.

SwabCheck

SwabCheck is used as an indication of hygiene on contact surfaces. SwabCheck changes color from purple to yellow. The color change is based on acid reaction with the indicator. The more rapid the color change, the higher the level of bacteria in the sample. SwabCheck is useful in determining the sanitation levels of preparation surfaces, filling ports, and processing areas in beverage and food processing plants, dairies, restaurants, and healthcare facilities.

Coliform SwabCheck

Escherichia coli and coliforms are used traditionally as indicator organisms for fecal contamination in water and other environmental samples. Detection of these organisms usually points to poor hygiene at some stage in the production process or pollution of water at source. The presence of coliforms is indicated by a color change from brown to yellow. The more rapid the color change the higher the level of coliform bacteria.

Hygiene SwabCheck

Easy to use: The Hygiene SwabCheck shows an obvious color change from red to yellow. The time taken for this change is an indication of the level of contamination. This should be used in conjunction with known specification levels of your process/product. Rapid screening hygiene test is a same day test that will detect gross bacterial and fungal contamination of work surfaces, equipment machinery or other sampling sites.

swabcheckK

The SwabCheck principle

The surface is wiped with a cellulose swab and any bacteria collected are transferred via the swab into a tube containing a special medium with an indicator dye, which is then incubated. A single bacterium is sufficient to cause a color change. This means that SwabCheck is about 1000 times more sensitive than the conventional ATP method. This accuracy is particularly important in the food industry. With this simple method, it is possible to identify microorganisms such as *Listeria monocytogenes*, which must not be present in any concentration in food and beverages.

Features & Benefits:

- The right test for each type of contamination
- A Qualitative and semi-quantitative hygiene control
- A Sterile packed and ready-for-use
- A Easy to handle
- A Rapid results
- A Long shelf-life

Total Count Swab Kit



Coliform SwabCheck





Listeria SwabCheck

Listeria Isolation SwabCheck is designed to be used alongside traditional selective methods to improve the quality system and minimize the risk of Listeria contamination. This simple to use diagnostic test can be applied anywhere in the environment and on foodstuffs where the presence of Listeria species would be critical.

Listeria sp and specifically Listeria monocytogenes are rapidly becoming the most important pathogen in the food industry; regulatory bodies from around the world are insisting that all food products are Listeria free. Listeria Isolation SwabCheck works on an enhanced Esculin media formulation. The hydrolysis of esculin gives a distinctive black/brown precipitate. Inhibitors and antibiotics are present in the media, which will inhibit the growth of non-Listeria species.

SwabCheck Escherichia coli

SwabCheck Escherichia coli is used for the detection of Escherichia coli on surfaces. The presence of fluorescence using a longwave UV light source confirms the presence of Escherichia coli and any further confirmation is not required. MUG detects anaerogenic strain that may not be detected in the conventional procedure. Lactose is a source of energy. Casein peptone provides additional nutrients. The mixture of bile salts is inhibiting for gram-positive bacteria, particularly bacilli and fecal streptococci. The substrate 4-methylumbelliferyl-b-D-glucuronide is hydrolyzed by an enzyme, b-glucuronidase, possessed by most Escherichia coli and a few strains of Salmonella, Shigella, and Yersinia, to produce a fluorescent end product, 4-methylumbelliferone. The presence of Escherichia coli is detected by the appearance of fluorescence throughout the tube.

Total Count Swab Kit

Total Count Swab Kit is used for the non-selective development and enumeration of all aerobic bacteria on surfaces in accordance with Hazard Analysis and Critical Control Points (HACCP). The kit includes the swabs and culture medium, packaged with a membrane device, providing a quantitative result. All bacteria develop on TGE media and produce a range of different colored and sized colonies. It is not possible using TGE to presumptively identify any bacteria. Identification can only be undertaken using traditional microbiology techniques following initial colony development.

Yeast and Mold Swab Kit

Yeast and Mold Swab Kit is used for the enumeration of yeast and molds on surfaces in accordance with HACCP. The kit includes the swabs and culture medium, packaged with a membrane device, providing a quantitative result. M-Green yeast and mold is an improved modification of the liquid medium, and was developed to improve efficiency of detection and enumeration of fungi in sugar based drinks using the membrane filtration method. This medium has a low pH, which inhibits bacterial growth. The addition of bromocresol green, which diffuses into fungal colonies as an alkaline reaction, allows them to be easily identified. Metabolic by-products from the developing colonies diffuse into the surrounding medium, further reducing the pH that aids in the inhibition of bacterial growth, but also produces an acid reaction that causes residual bromocresol green to change to yellow. Green opaque colonies against a yellow background are indicative of the growth of yeasts. Mold colonies are green and filamentous.

Polywipe Sponge

Polywipe Sponge is used for the recovery of microorganisms from a surface. Polywipe is a blue sponge that is premoistened with neutralizing buffer to neutralize the effects of surface disinfectants. The sponge material is selected to be free of the preservatives found in commercially available sponges, which can inhibit microorganism growth. Polywipe sponges are biocide free and tested for zero toxicity to microorganisms. Each sponge is individually wrapped in a peel pouch and gamma irradiated to ensure sterility.

Hygiene SwabCheck



Listeria SwabCheck



Yeast and Mold Swab Kit



Polywipe Sponge



Buffers

Buffers Ordering information

Product Code	Description	Volume	Quantity
10498303	Neutralizing Buffer Swabs	4 mL	125/pk
10498304	Neutralizing Buffer Swabs	4 mL	500/pk
10498305	Buffer Swabs	4 mL	125/pk
10498306	Buffer Swabs	4 mL	500/pk

SwabCheck Ordering information

Product Code	Description	Volume	Quantity
10498404	SwabCheck	4 mL/tube	125/pk
10498402	SwabCheck Escherichia coli	4 mL/tube	125/pk
10498315	Total Count Swab Kit	2.8 mL/tube and membrane device	30/pk
10498316	Yeast and Mold Swab Kit	2.8 mL/tube and membrane device	30/pk
10498406	Coliform SwabCheck	Individually wrapped package	25/pk
10498407	Hygiene SwabCheck	Individually wrapped package	25/pk
10498408	Listeria SwabCheck	Individually wrapped package	25/pk
10498521	Polywipe Sponge	Individually wrapped pre-moistened sponge	50/pk

Dilution Bottles



Prefilled sterile dilution bottles are designed for sample dilution of water, dairy products, foods, and pharmaceuticals prior to microbiological testing. Final pH for all solutions is 7.2 pH \pm 0.2 pH at 25°C. They come in an easy open, flip-top, plastic container with a tamper-evident seal.

Butterfield's Phosphate Buffer contains monobasic potassium phosphate and is used extensively in the food, dairy, and pharmaceutical industries. Offered in 90 mL and 99 mL volumes for easy 1:10 and 1:100 dilutions. It is recommended as a general diluent in laboratory procedures by the Federal Drug Administrations and in the Bacteriological Analytical Manual. This product is prepared according to Standard Methods for the Examination of Water and Wastewater for use in water testing.

Phosphate Buffer with magnesium chloride is used as the diluents for the preparation of dilutions in plate counts in the dairy and food industries. It is recommended by APHA for the recovery of injured microorganisms from dairy and food samples. Contains deionized water, monopotassium phosphate, and magnesium chloride.

Ordering information

Product Code	Description	Volume	Quantity
10498503	Dilution Bottle, Butterfield's Buffer	99 mL	72/pk
10498504	Dilution Bottle, Butterfield's Buffer	90 mL	72/pk
10498505	Dilution Bottle, Phosphate Buffer Magnesium Chloride	99 mL	72/pk

Analytical Funnels

GVS microbiological monitors and analytical funnels provide a complete system solution for liquid sample preparation. Each single-use, pre-sterilized filtering unit consists of a measured filter funnel, base, pad, membrane, removable lid and plug. This all-in-one system easily converts from the 100 mL filtration unit to a petri dish, which can be labeled and incubated for culturing. The GVS funnels meet the standard method requirements for a disposable device.

Each sterile analytical funnel includes a removable NC membrane.

Analytical funnels are ready-to-use 100 ml filtration units with membrane and culturing devices.

After filtration the membrane of the analytical funnel can be used for a wide range of qualitative and quantitative biological analysis.



Step 1



Step 2



Step 3



Step 4

Workflow

1. Sample filtration
2. Remove the upper part from the base
3. Put the base on the membrane lifting device
4. Separate the membrane from the pad and transfer the membrane into a petri dish with a sterile pad

Advantages

A Saves up to 50% in time

- No flaming
- Ready-to-use
- Presterilized

A Safety at work

- No flaming
- Minimizes the risk of cross-contamination

A Easy Handling

- Ready-to-use filtration unit
- Easy release of membrane

Ordering information

Product Code	Description	Quantity
10497507	Funnel, Nitrocellulose, White/Black Grid Sterile 0.2 µm	50/pk
10497510	Funnel, Nitrocellulose, White/Black Grid Sterile 0.2 µm , individually packaged	50/pk
10497504	Funnel, Nitrocellulose, White/Black Grid Sterile 0.45 µm	50/pk
10497506	Funnel, Nitrocellulose, White/Black Grid Sterile 0.45 µm, individually packaged	50/pk
10497508	Funnel, Nitrocellulose, Black/White Grid Sterile 0.45 µm	50/pk
10497509	Funnel, Nitrocellulose, Black/White Grid Sterile 0.45 µm, individually packaged	50/pk

Microbiological Monitors



GVS microbiological monitors and analytical funnels provide a complete system solution for liquid sample preparation. Each single-use, pre-sterilized filtering unit consists of a measured filter funnel, base, pad, membrane, removable lid and plug. This all-in-one system easily converts from the 100 mL filtration unit to a petri dish, which can be labeled and incubated for culturing. The GVS funnels meet the standard method requirements for a disposable device.

Each sterile monitor includes a NC membrane fixed and welded to the dish.

Monitors are single use, pre-sterilized filtering units with welded fixed membranes and culturing devices.

Microbiological Monitors are ideal for monitoring contaminants in liquid samples from raw materials to finished products. After the filtration is complete, 2 ml of microbiological media is added and the unit is converted into a petri dish for culturing the contaminants collected.



Step 1



Step 2



Step 3



Step 4

Workflow

1. Sample filtration
2. Remove the funnel
3. Add 2 ml of microbiological media
4. Replace the lid and incubate

Advantages

A Saves up to 70% in time

- No flaming
- Ready-to-use
- Presterilized

A Safety at work

- No flaming
- Minimizes the risk of cross-contamination

A Easy Handling

- Ready-to-use filtration unit

Ordering information

Product Code		Description	Quantity
47 mm	56 mm		
10497511	10497603	Monitor, Nitrocellulose, 0.2 µm, white/black grid, sterile	50/pk
10497500	10497600	Monitor, Nitrocellulose, 0.45 µm, white/black grid, sterile	50/pk
10497501	n/a	Monitor, Nitrocellulose, 0.45 µm, white/black grid, sterile, individually packaged	50/pk
10497502	10497601	Monitor, Nitrocellulose 0.45 µm, black/white grid, sterile	50/pk
10497503	10497602	Monitor, Nitrocellulose, 0.8 µm, black/white grid, sterile	50/pk

47 mm Filter Holder - Gravi-Seal™



autoclavable and chemically resistant for use in cell culturing and microbiological applications and filtering. The unit includes graduated up to 350 mL with 50 mL intervals. Each unit is supplied with a #8 rubber stopper to allow use with standard 1L filter flasks or vacuum systems such as the GVS 3- or 6- place Manifold.

Features & Benefits

- ADurable - break resistant, no extra parts to break or wear out
- AUses a 47 mm depth filter disc
- AOne-handed operation
- AOnly two parts
- ANo clamps, wheel locks, or magnets to wear out
- ASolid, stable and easy to use

Typical Applications

- AFiltering liquids for sterility
- AParticle removal
- AGeneral filtration
- AAutoclavable

The GVS polysulfone 47 mm autoclavable filter holder combines The Gravi-Seal filter holder uses a unique gravity held design that allows for one-handed operation with no danger of filter by-pass or sample leakage even when using depth filters. The filter holder combines the key features and benefits needed in one simple unit, making it a tremendous value. The funnel includes only two components with no required clamps or locking devices to manipulate. The durable and break-resistant polysulfone (PS) unit is

Ordering information

Product Code	Description	Quantity
1213865	Gravi-Seal PS Analytical Filter Holder (complete unit): 47 mm	1/pk
1214124	Gravi-Seal PS Analytical Filter Holder (complete unit): 47 mm	3/pk
1213883	Gravi-Seal PS Analytical Filter Holder, Base Only	1/pk
1213882	Gravi-Seal PS Analytical Filter Holder, Funnel Only	1/pk

Multi-Position Filtration Manifold



- A Different sizes: 3 and 6 places
- A The spin-lock design: The manifold uses a spin-lock connection which facilitates fast and stable installation without clamps.
- A It can be easily dismantled for the cleaning operations or to check each part.
- A The assembling is even possible according to user's needs, choosing among various uniform type, different type or mixed form type columns
- A The base structural materials is in satin Stainless Steel with sides handles in anodized aluminium
- A One side is fitted with hose-barb for 2 different diameters of vacuum hoses \varnothing 8 and 12 mm, the opposite side is fitted with a stopper.
- A Hose-barb and stopper are interchangeable to facilitate the proximity to the vacuum source
- A Each part is easily disassembled, inspectable, autoclavable at 121°C for 30 minutes, washable, sanitizable or sterilizable

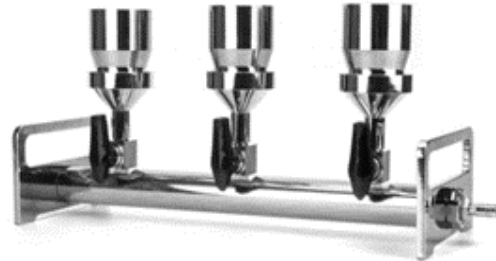
Ordering information

Product Code	Description
MANIFW16711023A	3-Branch Stainless Steel Manifold, for Gravi-Seal™ or other devices with rubber stopper
MANIFW16711026A	6-Banch Stainless Steel Manifold, for Gravi-Seal™ or other devices with rubber stopper

Stainless steel Manifold



- A Stainless Steel 500 ml, graduated 250 and 500 ml
- A Stainless Steel 300ml, graduated every 50 ml
- A Stainless Steel 100 ml, graduated at 50 ml
- A Available Prefilter devices, that provides a physical separation on two filters which have been set up in series, to clarify first



Ordering information

Product Code	Description
MANIFW16710323A	3-Branch Stainless Steel Manifold
MANIFW16710324A	3-Branch Stainless Steel Manifold incl. 3 x 100 ml Stainless Steel Filter Cups
MANIFW16710123A	3-Branch Stainless Steel Manifold incl. 3 x 300 ml Stainless Steel Filter Cups
MANIFW16710124A	3-Branch Stainless Steel Manifold incl. 3 x 500 ml Stainless Steel Filter Cups
MANIFW16710326A	6-Branch Stainless Steel Manifold
MANIFW16710327A	6-Branch Stainless Steel Manifold incl. 6 x 100 ml Stainless Steel Filter Cups
MANIFW16710126A	6-Branch Stainless Steel Manifold incl 6 x 300 ml Stainless Steel Filter Cups
MANIFW16710127A	6-Branch Stainless Steel Manifold incl 6 x 500 ml Stainless Steel Filter Cups

Stainless Steel Funnel Lid



Ordering information

Product Number	Description
SSFL16710311A	100 mL Stainless Steel Funnel Lid, Suitable for 100 mL Stainless Steel Filter Cup (Cylinder Type)
SSFL16710313A	300 mL Stainless Steel Funnel Lid, Suitable for 300 mL Stainless Steel Filter Cup (Cylinder Type)
SSFL16710315A	500 mL Stainless Steel Funnel Lid, Suitable for 500 mL Stainless Steel Filter Cup (Cylinder Type)

Manifold for Speed Pack or 1+Pac and funnels



This mushroom shaped column with polished inner part is supplied with a membrane support disc in sintered SS \varnothing 40 mm removable with a finger



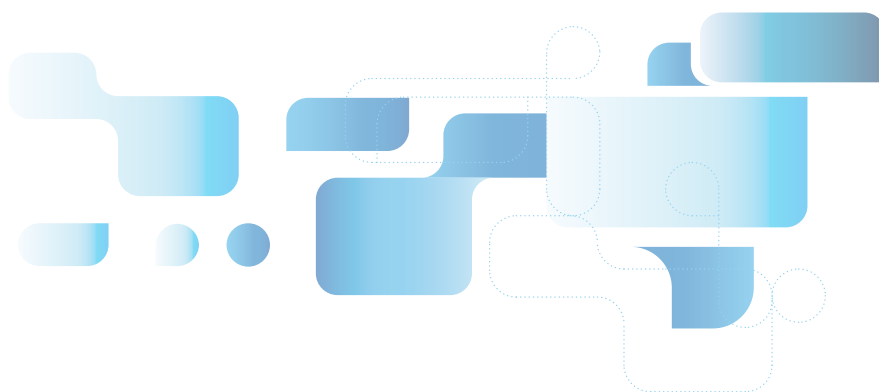
PP disposable funnels for separated membrane

PP funnels 100 and 200 capacity, graduated
In packs of 100 pieces divided into 10 sterile boxes of 10 pieces
Disposable type, easy to use



Ordering information

Product Code	Description
MANIFW16711088A	3-Branch Stainless Steel Manifold
MANIFW16711089A	6-Banch Stainless Steel Manifold
FUNNELA100SR	PP funnel 100 ml sterile for Speed-Pack - 150pcs
FUNNELA250SR	PP Funnel 250 ml sterile for Speed-Pack - 150 pcs



Manifold for Analytical Funnel and Monitors

A On this mushroom shaped column are mounted graduated filtration devices as GVS Analytical Funnel and Microbiologic Monitor, with inner Ø 46,5.

A Devices are mounted simply by a light finger pressure

A Analytical Funnel and Microbiologic Monitor

A Pouring the sample

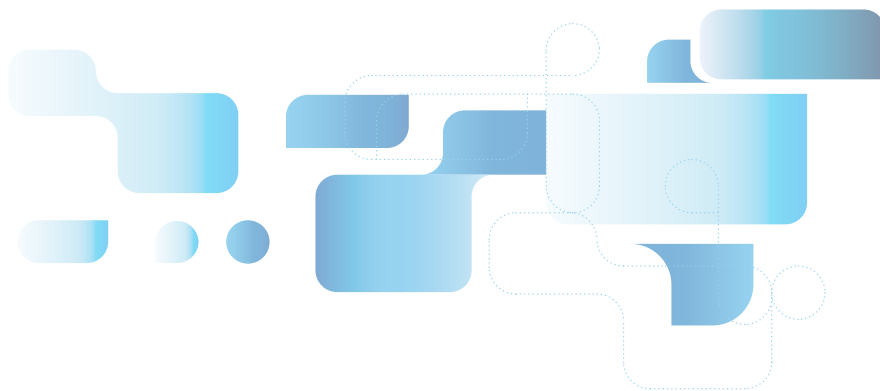
A Removing the cylinder

A Petri ready for incubation



Ordering information

Product Code	Description
MANIFW16700323A	3-Branch Stainless Steel Manifold
MANIFW16700326A	6-Branch Stainless Steel Manifold



PP/PC Waste Bottle



Product Number	WAB016720031A	WAB016720032A	WAB016720033A
Bottle	PC	PC	PC
Bottle Cover	PC	PC	PC
Spill-Proof Buoy	PP	PP	PP
Description			
Capacity (mL)	1000	2000	3000
Outlet (mm)	8	8	8
Spill-Proof Buoy	Yes	Yes	Yes



WAB016720031A



WAB016720032A



WAB016720033A

PC Waste Bottle

Description	Material		
Product Number	WAB016712034A		
Capacity (mL)	4000	Bottle	PC
Outlet (mm)	8	Bottle Lid	ABS
Spill-Proof Buoy	Yes	Float Switch	PP
Autoclavability(121℃)	Yes		

Stand for Waste Bottle

Description	Product Number
Stand for waste bottle designed for Stabilizing the bottle in filtration work	WAB016720039A



Silicon Tubing

Product Number	Outer Diameter (mm)	Inner Diameter (mm)	Thickness (mm)	Length (mm)
SITU16802001A	12	6	3	1
SITU16802101A	14	8	3	1
SITU16802201A	16	10	3	1



Product Number	Outer Diameter (mm)	Inner Diameter (mm)	Thickness (mm)	Length (mm)
SITU16803001A	12	8	3	1

Oil-Free Piston Vacuum Pumps

- A No air pollution, maintenance free (driven by Piston, without the need of lubricant, regular oil changes and maintenance)
- A The oil-free piston vacuum pump provides continuous, reliable, high flow vacuum for your container
- A Pumps are equipped with vacuum regulator to adjust vacuum
- A Pumps has a built-in thermal protection device to shut off the pump automatically when overheated and then resume working when the temperature cools down



Product Service

Products certificated for sales in EU, US and Asia Pacific



Model	V300	V400	V410
Power (V/Hz)	220 / 50	220 / 50	220 / 50
Max. power (W)	60	80	80
Max. current (A)	0.3	0.4	0.4
Max. vacuum (mbar)	100	100	30
Max. flow rate (L/min)	17	34	19
Motor rotation (RPM)	1450	1450	1450
Port thread (mm)	9	9	9
Dimension WxDxH (mm)	272 x 142 x 165	310 x 152 x 165	310 x 152 x 165
Weight (kg)	4.4	5.4	5.4
Noise level (dB)	50	60	50

Ordering information

Product Code	Description	Quantity
OIFPUMPV300L17A	Ultimate Vacuum: 100mbar; Max. Flow Rate: 17 L/min	1/pk
OIFPUMPV400L34A	Ultimate Vacuum: 100 mbar; Max. Flow Rate: 34 L/min	1/pk
OIFPUMPV410L19A	Ultimate Vacuum: 30 mbar; Max. Flow Rate: 19 L/min	1/pk
OIFPUMPV600L60A	Ultimate Vacuum: 150 mbar; Max. Flow Rate: 60 L/min	1/pk
OIFPUMPV610L40A	Ultimate Vacuum: 30 mbar; Max. Flow Rate: 40 L/min	1/pk

Available Voltage : 110V or 220V

Plug-Type : EU, US, UK, Australian, India, Japan, Switzerland



Chemical Resistant Diaphragm Vacuum Pumps



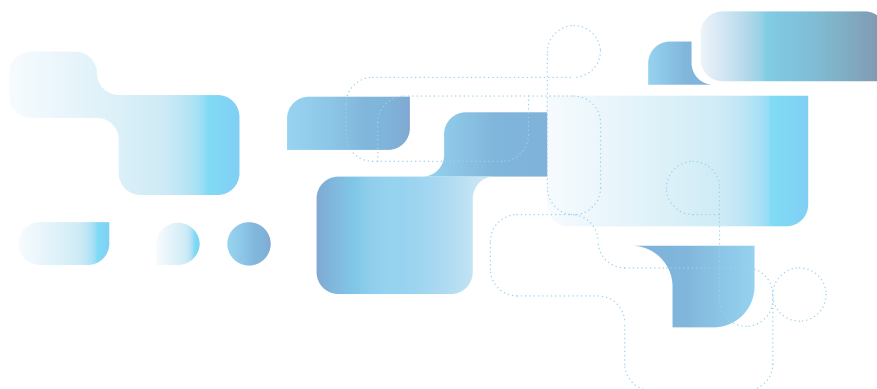
A Chemical and petrochemical Industry
 A Pharma Industry
 A Filtration processes
 A Vacuum distillation
 A Rotary evaporation
 A Vacuum and centrifugal concentration
 A Solid phase extraction
 A Conventional drying and gel drying
 A Advanced substitute for water-jet pumps



Model	C300		C400	
Powe	115V/60Hz	220V/50Hz	115V/60Hz	220V/50Hz
Max.power(W)	70	60	90	95
Max.current(A)	1.6	9.5	1.4	0.5
Max.vacuum(mbar)	100		120	
Max.Flow Rate(L/min)	22	22	34	34
Motor Speed(rpm)	1700	1450	1700	1450
Number of Stages	Single		Single	
Outlet(mm)	10		10	
Size WxDxH(mm)	233*110*210		294*156*195	
Weight(kg)	6		8.5	
Noise Level(dB)	50		50	

Ordering information

Product Code	Descirption
DIAPUMPC300L22AE	Ultimate Vacuum: 100 mbar; Max. Flow Rate: 22 L/min
DIAPUMPC400L34AE	Ultimate Vacuum: 120 mbar; Max. Flow Rate: 34 L/min
DIAPUMPC410L25AE	Ultimate Vacuum: 13 mbar; Max. Flow Rate: 25 L/min
DIAPUMPC510L34AE	Ultimate Vacuum: 8 mbar; Max. Flow Rate: 34 L/min;
DIAPUMPC600L60AE	Ultimate Vacuum: 90 mbar; Max. Flow Rate: 60 L/min
DIAPUMPC610L37AE	Ultimate Vacuum: 2-4 mbar; Max. Flow Rate: 37 L/min



Automatic Device of Filter Membrane

Product Instruction

The Automatic Device of Filter Membrane is a continuous membrane for dispensing individual aseptic packaging. The membrane device automatically removes the aseptic packaging of the filter membrane, even available model with a touch-free mode induced by an optical sensor.. No manual operation, free the user's hands, the membrane is distributed in the process, do not contact with other items, to avoid the risk of contamination.

Operating Principle

The membrane and the transparent are fixed on the two scrolls by the roll clamp, and the transparent is separated from the membrane by the rotation of the two scrolls, so as to distribute the membrane. When the membrane is distributed, it does not come into contact with other items to avoid the risk of contamination.

Range of Application

- Pharmaceutical industry: microbial limit inspection of purified water, water for injection, raw materials and oral liquid, tablets, capsules, biological products and preparations.
- CDC: air conditioning condensate, drinking water and other water quality of the total number of bacterial colony
- inspection and detection of pathogens.
- Food industry: Check the total number of colonies of beverages, mineral water and purified water. Cosmetics and chemical industry: all kinds of water samples that need to be tested for microorganisms.

Technical feature

Technical Parameters

- Input voltage: 80 to 264 VAC
- Frequency: 47 -63 Hz
- Power Supply: 12 VDC
- 30 °C +70 °C wide range working temperature



Transformer and adapter plugs according to countries



- Stainless steel body spray processing, small size, beautiful shape.
- Available with Power Supply or lithium-ion batteries.
- AC drive can be connected to the charger.
- Automatic distribution filter membrane.
- Available model with optical sensor to take the film, without manual operation touch the button to take the film.
- Fast and reliable transfer of filter membrane, filter membrane transfer by reel drive technology.
- The filter membrane is easy to load.
- Automatic collection of protective packaging.
- Original color calibration technology, accurate detection.

Ordering information

Product Code	Description	Qty.
SPMD0003CH	Membrane Dispenser, Powersupply	1 pc

Dimensions and Weight	Value	Units
Dimensions (L × W × H)	209 × 182 × 206	mm
Weight	3.5	kg

Enumeration of Legionella

Legionella is a bacterial micro-organism responsible for Legionellosis disease.



Determination Method	Membrane
Legionella ISO11731: Concentration Method	PCTE or PES Membrane, 47mm, 0.2um pore size
Legionella ISO11731: Direct Culturing Method	NC or MCE Membrane, 47mm, 0.2um or 0.45um pore size

The ISO 11731 International Standard Water Quality - Enumeration of Legionella specifies the culture and analysis methods for the isolation of Legionella and enumeration in water samples. Test methods include concentration by membrane filtration, dilution or directly plated.

For direct placing on culture media, ISO 11731 recommends the use of nitrocellulose (NC) or mixed cellulose ester (MCE) membranes for culturing media; diameter of 47mm or 50mm with rated pore sizes of 0.2um or 0.45um.

For concentration and elution: ISO 11731 recommends the use of PCTE or PES membrane filters, diameter 47mm to 142 mm with rated pore sizes of 0.2 µm for concentration followed by a washing procedure.

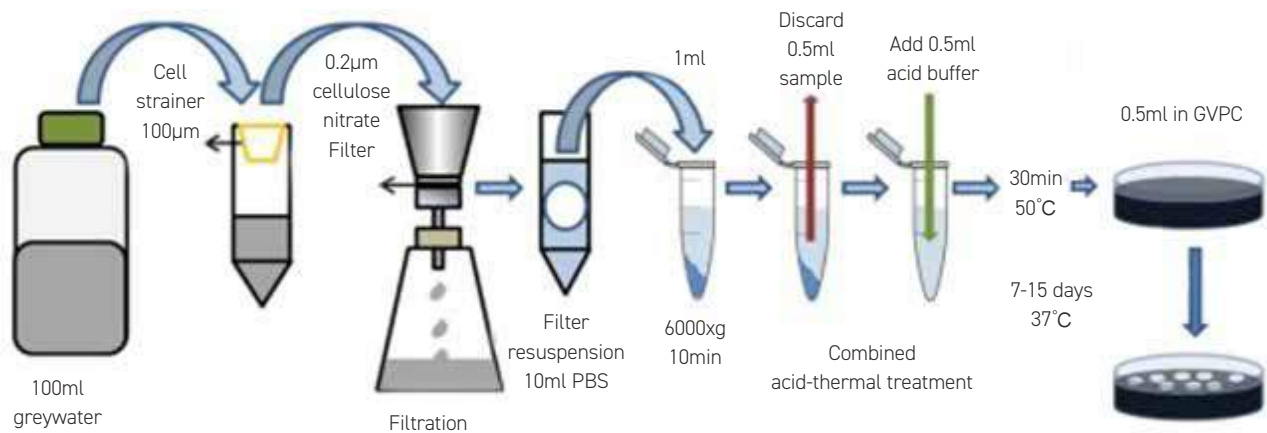
Determination Method	Membrane
Legionella ISO 12869	FLAME FAST All-in-ONE kit

Traditional culture culture-based detection of bacteria is often laborious and time consuming.

PCR-based methodologies are generally more specific, informative immediate strain identification), sensitive, and faster. Although, a pre-enrichment step is still often needed, the simplicity and time saving feature of the PCR reaction has made it increasingly applicable for detection of bacterial pathogens.

PCR based ISO standard methods, such as ISO12869 rules how to detect Legionella

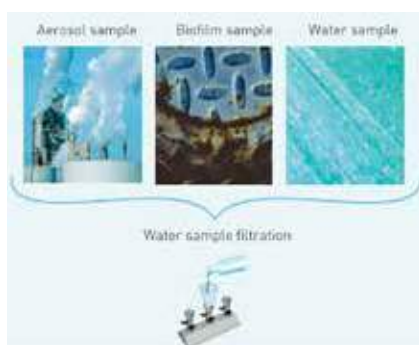
WORKFLOW OF ACTUAL METHODS WITH CONVERGENCE ON CONFIRMATION AND SEROTYPING STEP



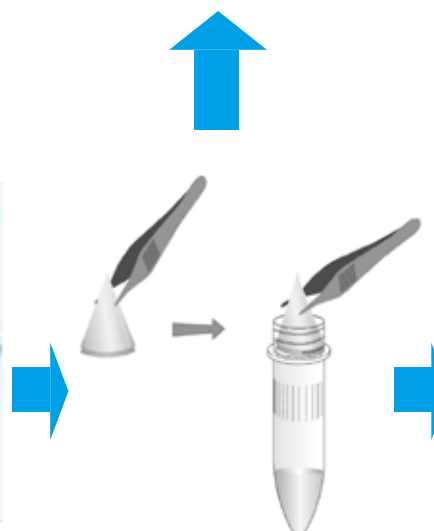
Confirmation and Serotyping of *L. pneumophila* by Latex



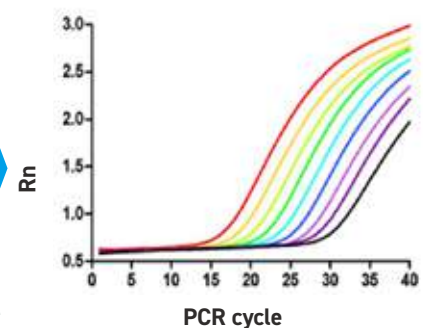
Confirmation and Serotyping of *L. pneumophila* by FLAME Fast *L. Pneumonia* and SG1 Multiplex kit



Water sample filtration



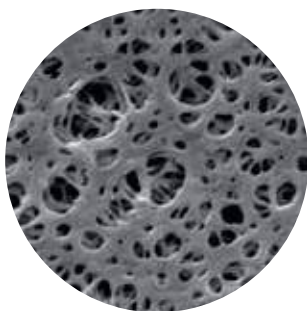
Extraction of *Legionella* DNA from



PCR cycle
Detection and quantification of *Legionella* DNA by qPCR



Polyethersulfone (PES) Membrane



ULTRA^{Sep}
Polyethersulfone
Membrane

GVS Polyethersulfone (PES) Filtration Membrane is hydrophilic and cast from pure polyethersulfone polymer. It is designed to remove particulates during general filtration and its low protein and drug binding characteristics make it ideally suited for use in life science applications.

Product Uniformity and High Sensitivity Maximize Performance

This strong, microporous film asymmetric membrane is constructed from a high-temperature polyethersulfone polymer that is acid and base resistant. Its strength and durability are advantageous during usage that involves aggressive handling or automated equipment. GVS PES Filtration Membrane is naturally hydrophilic without added wetting agents and has low

extractables.

Due to its inherent uniform porosity and controlled pore size, GVS PES Filtration Membrane efficiently removes particulates from solutions during general filtration.

Features & Benefits

- A**Hydrophilic: Eliminates the need for wetting agents that can potentially interfere with analyses
- A**Low extractables: Ensures test results will not be compromised by wetting agents or other extractables
- A**Superior burst strength: Protects the integrity of the membrane under high pressure
- A**Lot-to-lot consistency: Quality checks, both down and across the membrane, ensure dependable results every time

Typical Applications

- A**Protein and enzyme filtration and sterilization
- A**Biological fluid filtration and sterilization
- A**Pharmaceutical sterilization
- A**Environmental water studies

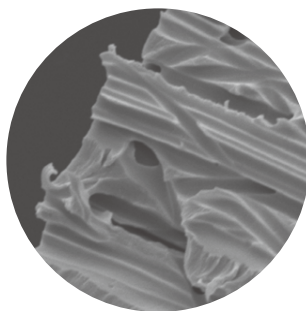
Performance

Pore Size (µm)	Flow Time (s)	Volume/Vacuum (mL/in Hg)	Flow Rate (mL/min/cm ² @ 10 psi)	Bubble Point (psi)
0,2	35-70	250/20	22.72-45.45	50-70

Ordering information

Product Code	Pore Size (µm)	Dimension (mm)	Description	Packaging
1226158	0.2 µm	47 mm	PES white sterile single packed	200/pk
1226159	0.4 µm	47 mm	PES white sterile single packed	200/pk

Polycarbonate Track Etched (PCTE) Membrane



PORETICS
PCTE Membrane

Characteristics

- A Smooth, thin, glass-like surface is suitable for microscopy and cellular applications
- ASuperior strength allows for aggressive handling
- AResists chemical staining to ease microscopic visualization

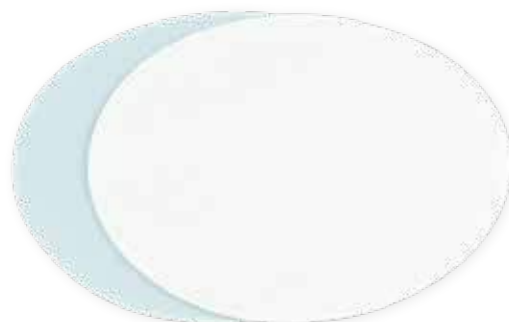
Typical Applications

- ALegionella test (UNI EN ISO 11731_2017)

GVS Life Sciences Polycarbonate Track Etched (PCTE) Membrane is made from a thin polycarbonate film with precisely defined pores. The proprietary manufacturing process provides increased control over pore size and density for absolute size separation. This unique process ensures the physical properties of each membrane precisely fit specification.

Nominal Product Characteristics

Thickness	10 µm
Optical Properties	Semi-translucent
Maximum Operating Temperature	284°F (140°C)
Sterilization	Gamma Irradiation
Autoclavable	Yes
Wetting Characteristics	Hydrophilic

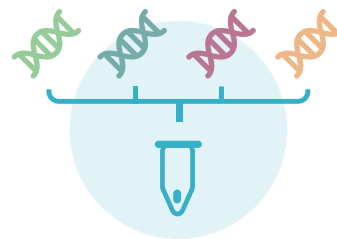


Ordering information

Product Code	Pore Size (µm)	Dimension (mm)	Description	Packaging
1226157	0.2 µm	47 mm	PCTE white sterile single packed	200/pk
1226156	0.4 µm	47 mm	PCTE white sterile single packed	200/pk

FLAME FAST ALL-IN-ONE QPCR KIT

A NEW ERA IN WATER ANALYSIS
with Membranes and E xtraction kit included



FAST, CERTIFIED, READY TO USE



ALL THE REAGENTS
PRE-DOSED AND
LYOPHILIZED IN THE
REACTION TUBES



TESTED AND VALIDA-
TED PROTOCOLS

ENERGY SAVING

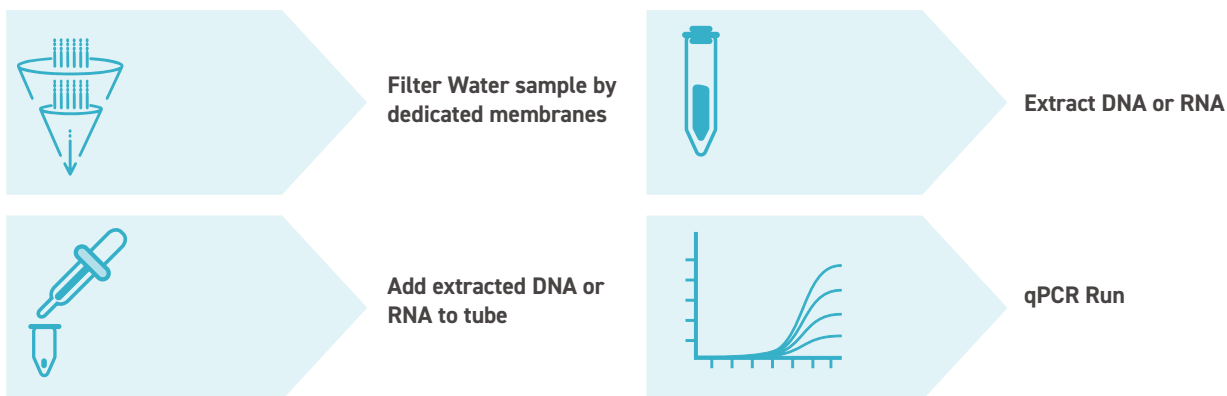
TRANSPORT AND STORAGE
AT ROOM TEMPERATURE

LONG SHELF LIFE

PRODUCT DURABILITY
24 MONTHS

FLEXIBILITY

AVAILABLE VERSION FOR MANUAL
OR AUTOMATIC (MAGNETIC BEADS)
EXTRACTION



AVAILABLE TARGETS FOR WATER ANALYSIS

Legionella pneumophila and Legionella spp.
(Compliance with NF T90-471, ISO 11731:2017 and ISO/TS 12869:2019)

Clostridium perfringens

Salmonella spp.

Campylobacter spp

Yersinia spp

Pseudomonas aeruginosa

Campylobacter spp. + Salmonella spp. + Legionella spp.

Clostridium perfringens + Yersinia spp. + Pseudomonas aeruginosa

AVAILABLE SIZE 48 OR 96 TESTS



QUALITY CERTIFIED

Zero risk of operator error, inhibition controls, ISO and relevant standards compliant.



COMPATIBILITY

Compatibility with main Real Time PCR instruments, validated with the principal extraction systems.



FAST

Simultaneous multitarget detection, little bit over one hour analysis, reduced hand on time, for RNA one step RT-PCR.



READY TO USE

No need to add anything else.



INNOVATION

Multiplex Assays to measure more targets by only one run.



RECLOSABLE BAG

Use one or more tubes, according to your needs.

Ordering information



Product Code	Description
FLFAIO1007Z48	FLAME FAST Clostridium perfringens ALL-IN-1 Kit - 48 rxn (0,1 tubes) (0,1 tubes)
FLFAIO1003Z48	FLAME FAST Salmonella species ALL-IN-1 Kit - 48 rxn (0,1 tubes) (0,1 tubes)
FLFAIO1004Z48	FLAME FAST Campylobacter species ALL-IN-1 Kit - 48 rxn (0,1 tubes)
FLFAIO1072Z48	FLAME FAST Yersinia species ALL-IN-1 Kit - 48 rxn (0,1 tubes)
FLFAIO1073Z48	FLAME FAST Pseudomonas aeruginosa ALL-IN-1 Kit - 48 rxn (0,1 tubes)
FLFAIO1113Z48	FLAME FAST L. pneumophila ALL-IN-1 Kit - 48 rxn (0,1 tubes)
FLFAIO1074Z48	FLAME FAST Legionella species ALL-IN-1 Kit - 48 rxn (0,1 tubes)
FLFAIO1075Z48	FLAME FAST Campylobacter sp-Salmonella sp-Legionella sp ALL-IN-1 Multi Kit - 48 rxn (0,1 tubes)
FLFAIO1076Z48	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aerug. ALL-IN-1 Multi Kit - 48 rxn(0,1 tubes)
FLFAIO1007Z96	FLAME FAST Clostridium perfringens ALL-IN-1 Kit - 96 rxn (0,1 tubes)
FLFAIO1003Z96	FLAME FAST Salmonella species ALL-IN-1 Kit - 96 rxn (0,1 tubes)
FLFAIO1004Z96	FLAME FAST Campylobacter species ALL-IN-1 Kit - 96 rxn (0,1 tubes)
FLFAIO1072Z96	FLAME FAST Yersinia species ALL-IN-1 Kit - 96 rxn (0,1 tubes)
FLFAIO1073Z96	FLAME FAST Pseudomonas aeruginosa ALL-IN-1 Kit - 96 rxn (0,1 tubes)
FLFAIO1113Z96	FLAME FAST L. pneumophila ALL-IN-1 Kit - 96 rxn (0,1 tubes)
FLFAIO1074Z96	FLAME FAST Legionella species ALL-IN-1 Kit - 96 rxn (0,1 tubes)
FLFAIO1075Z96	FLAME FAST Campylobacter sp-Salmonella sp-Legionella sp ALL-IN-1 Multi Kit - 96 rxn (0,1 tubes)
FLFAIO1076Z96	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aerug. ALL-IN-1 Multi Kit - 96 rxn(0,1 tubes)
FLFMAIO1007Z32	FLAME FAST Clostridium perfringens ALL-IN-1 Kit with Magnetic Beads - 48 rxn (0,1 tubes)
FLFMAIO1003Z32	FLAME FAST Salmonella species ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,1 tubes)
FLFMAIO1004Z32	FLAME FAST Campylobacter species ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,1 tubes)
FLFMAIO1072Z32	FLAME FAST Yersinia species ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,1 tubes)
FLFMAIO1073Z32	FLAME FAST Pseudomonas aeruginosa ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,1 tubes)
FLFMAIO1113Z32	FLAME FAST L. pneumophila ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,1 tubes)
FLFMAIO1074Z32	FLAME FAST Legionella species ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,1 tubes)
FLFMAIO1075Z32	FLAME FAST Campylobacter sp-Salmonella sp-Legionella sp ALL-IN-1 Multi Kit w/MB-32 rx(0,1 tubes)
FLFMAIO1076Z32	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aeru ALL-IN-1 Multi Kit w/MB-32 rx(0,1 tubes)
FLFMAIO1007Z96	FLAME FAST Clostridium perfringens ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,1 tubes)
FLFMAIO1003Z96	FLAME FAST Salmonella species ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,1 tubes)
FLFMAIO1004Z96	FLAME FAST Campylobacter species ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,1 tubes)
FLFMAIO1072Z96	FLAME FAST Yersinia species ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,1 tubes)
FLFMAIO1073Z96	FLAME FAST Pseudomonas aeruginosa ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,1 tubes)
FLFMAIO1113Z96	FLAME FAST L. pneumophila ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,1 tubes)
FLFMAIO1074Z96	FLAME FAST Legionella species ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,1 tubes)
FLFMAIO1075Z96	FLAME FAST Campylobacter sp-Salmonella sp-Legionella sp ALL-IN-1 Multi Kitw/MB-96 rx (0,1 tubes)
FLFMAIO1076Z96	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aeru ALL-IN-1 Multi Kit w/MB-96 rx(0,1 tubes)
FLM01007B	FLAME FAST Clostridium perfringens qPCR detection Kit (24 rxn in 0,1ml clear tubes)
FLM01003B	FLAME FAST Salmonella qPCR species detection Kit (24 rxn in 0,1ml clear tubes)
FLM01004B	FLAME FAST Campylobacter species qPCR detection Kit (24 rxn in 0,1ml clear tubes)
FLM01072B	FLAME FAST Yersinia species qPCR detection Kit (24 rxn in 0,1ml clear tubes)
FLM01073B	FLAME FAST Pseudomonas aeruginosa qPCR detection Kit (24 rxn in 0,1ml clear tubes)
FLM01113B	FLAME FAST L. pneumophila qPCR detection Kit (24 rxn in 0,1ml clear tubes)
FLM01074B	FLAME FAST Legionella species qPCR detection Kit (24 rxn in 0,1ml clear tubes)
FLM01075B	FLAME FAST Campylobacter sp, Salmonella sp and Legionella sp qPCR detection Kit -24 rx(0,1 tub)
FLM01076B	FLAME FAST Legionella pn., Legionella sp and Pseudomonas aerug qPCR detection Kit-24 rx(0,1 tub)
FLFAIO1007T48	FLAME FAST Clostridium perfringens ALL-IN-1 Kit - 48 rxn (0,2 tubes)
FLFAIO1003T48	FLAME FAST Salmonella species ALL-IN-1 Kit - 48 rxn (0,2 tubes)
FLFAIO1004T48	FLAME FAST Campylobacter species ALL-IN-1 Kit - 48 rxn (0,2 tubes)
FLFAIO1072T48	FLAME FAST Yersinia species ALL-IN-1 Kit - 48 rxn (0,2 tubes)
FLFAIO1073T48	FLAME FAST Pseudomonas aeruginosa ALL-IN-1 Kit - 48 rxn (0,2 tubes)
FLFAIO1113T48	FLAME FAST L. pneumophila ALL-IN-1 Kit - 48 rxn (0,2 tubes)
FLFAIO1074T48	FLAME FAST Legionella species ALL-IN-1 Kit - 48 rxn (0,2 tubes)
FLFAIO1075T48	FLAME FAST Campylobacter sp-Salmonella sp-Legionella sp ALL-IN-1 Multi Kit - 48 rxn (0,2 tubes)
FLFAIO1076T48	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aerug ALL-IN-1 Multi Kit - 48 rxn (0,2 tubes)
FLFAIO1007T96	FLAME FAST Clostridium perfringens ALL-IN-1 Kit - 96 rxn (0,2 tubes)
FLFAIO1003T96	FLAME FAST Salmonella species ALL-IN-1 Kit - 96 rxn (0,2 tubes)
FLFAIO1004T96	FLAME FAST Campylobacter species ALL-IN-1 Kit - 96 rxn (0,2 tubes)
FLFAIO1072T96	FLAME FAST Yersinia species ALL-IN-1 Kit - 96 rxn (0,2 tubes)
FLFAIO1073T96	FLAME FAST Pseudomonas aeruginosa ALL-IN-1 Kit - 96 rxn (0,2 tubes)
FLFAIO1113T96	FLAME FAST L. pneumophila ALL-IN-1 Kit - 96 rxn (0,2 tubes)

Ordering information

Product Code	Description
FLFAIO1113T96	FLAME FAST L. pneumophila ALL-IN-1 Kit - 96 rxn (0,2 tubes)
FLFAIO1074T96	FLAME FAST Legionella species ALL-IN-1 Kit - 96 rxn (0,2 tubes)
FLFAIO1075T96	FLAME FAST Campylobacter sp-Salmonella sp-Legionella sp ALL-IN-1 Multi Kit - 96 rxn (0,2 tubes)
FLFAIO1076T96	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aerug ALL-IN-1 Multi Kit - 96 rxn (0,2 tubes)
FLFMAIO1007T32	FLAME FAST Clostridium perfringens ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,2 tubes)
FLFMAIO1003T32	FLAME FAST Salmonella species ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,2 tubes)
FLFMAIO1004T32	FLAME FAST Campylobacter species ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,2 tubes)
FLFMAIO1072T32	FLAME FAST Yersinia species ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,2 tubes)
FLFMAIO1073T32	FLAME FAST Pseudomonas aeruginosa ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,2 tubes)
FLFMAIO1113T32	FLAME FAST L. pneumophila ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,2 tubes)
FLFMAIO1074T32	FLAME FAST Legionella species ALL-IN-1 Kit with Magnetic Beads - 32 rxn (0,2 tubes)
FLFMAIO1075T32	FLAME FAST Campylobacter sp-Salmonella sp-Legionella sp ALL-IN-1 Multi Kit w/MB-32 rxn(0,2 tub)
FLFMAIO1076T32	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aerug ALL-IN-1 Multi Kit w/MB-32 rxn(0,2 tub)
FLFMAIO1007T96	FLAME FAST Clostridium perfringens ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,2 tubes)
FLFMAIO1003T96	FLAME FAST Salmonella species ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,2 tubes)
FLFMAIO1004T96	FLAME FAST Campylobacter species ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,2 tubes)
FLFMAIO1072T96	FLAME FAST Yersinia species ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,2 tubes)
FLFMAIO1073T96	FLAME FAST Pseudomonas aeruginosa ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,2 tubes)
FLFMAIO1113T96	FLAME FAST L. pneumophila ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,2 tubes)
FLFMAIO1074T96	FLAME FAST Legionella species ALL-IN-1 Kit with Magnetic Beads - 96 rxn (0,2 tubes)
FLFMAIO1075T96	FLAME FAST Campylobacter sp-Salmonella sp-Legionella sp ALL-IN-1 Multi Kit w/MB-96 rxn(0,2 tub)
FLFMAIO1076T96	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aerug ALL-IN-1 Multi Kit w/MB-96 rxn(0,2 tub)
FLM01007	FLAME FAST Clostridium perfringens qPCR detection Kit (24 rxn in 0,2ml clear tubes)
FLM01003	FLAME FAST Salmonella qPCR species detection Kit (24 rxn in 0,2ml clear tubes)
FLM01004	FLAME FAST Campylobacter species qPCR detection Kit (24 rxn in 0,2ml clear tubes)
FLM01072	FLAME FAST Yersinia species qPCR detection Kit (24 rxn in 0,2ml clear tubes)
FLM01073	FLAME FAST Pseudomonas aeruginosa qPCR detection Kit (24 rxn in 0,2ml clear tubes)
FLM01113	FLAME FAST L. pneumophila qPCR detection Kit (24 rxn in 0,2ml clear tubes)
FLM01074	FLAME FAST Legionella species qPCR detection Kit (24 rxn in 0,2ml clear tubes)
FLM01075	FLAME FAST Campylobacter sp-Salmonella sp- Legionella sp qPCR detection Kit-24 rx(0,2 tubes)
FLM01076	FLAME FAST Legionella pn-Legionella sp-Pseudomonas aerug qPCR detection Kit-24 rxn(0,2 tubes)
FLB01014	FLAME Fast DNA Extraction kit from clear water (24 rxn)
FLB21009	FLAME Fast DNA Extraction kit from food (24 rxn)
FLB0270	FLAME BEADS UNIVERSAL DNA/RNA EXTRACTION Kit 96 test
FLB0271	FLAME BEADS UNIVERSAL DNA/RNA EXTRACTION Kit PreFilled Plate 96 test
FLB0273	FLAME BEADS UNIVERSAL DNA/RNA EXTRACTION Kit PreFilled Plate 64 test
FLB0010	FLAME BEADS Lysis Buffer 30 ml
FLB0011	FLAME BEADS Lysis Buffer 125 ml
FLB0268	FLAME BEADS Carrier 1 mg
FLB0269	FLAME BEADS Carrier Buffer 1.2 ml
FLB01009	FLAME Fast free DNA inactivator - 200 test
FLB02014	FLAME Fast DNA Extraction kit from dirty water (24 rxn)



MicroPad MICROBIAL COUNT PLATE

Microbiology - the cause of 95% of food safety issues

Microorganisms are of great significance to foods for several reasons. The most significant one is that they can cause spoilage of foods and can also be applied to manufacture a wide variety of food products, as well as cause microbial diseases transmitted by foods. According to world food safety market research and statistics, 99.5% of the issues in food safety is caused by microbiology. Detection, identification and enumeration of these foodborne microorganisms are of great importance. From general food hygiene to pathogens enumeration, it is necessary and urgent to make sure that the foods are safe for human consumption.

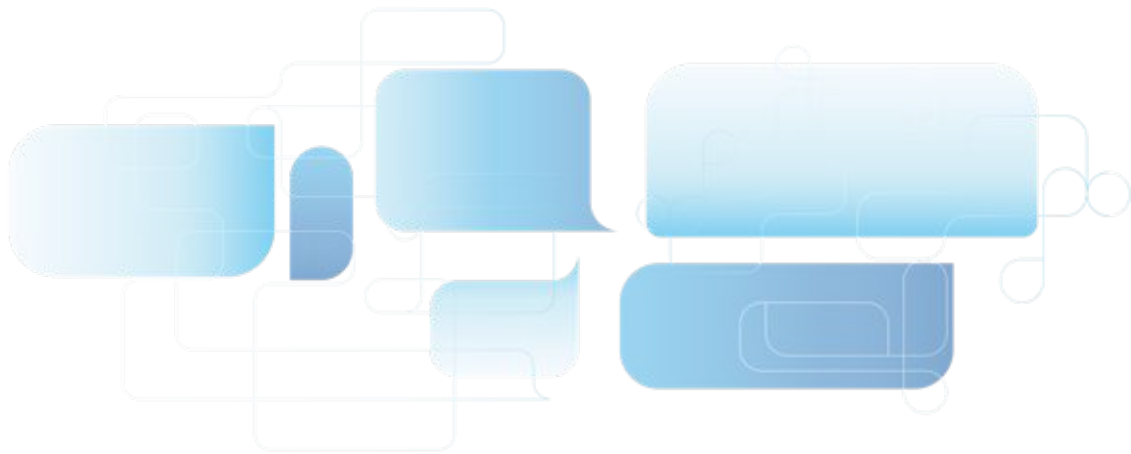
Foods can be considered as a medium for microbial growth. Considering the vast array of sources, substances, and methods with which food is produced, practically every kind of microbe is a potential contaminant.

Conventional detection of pathogenic bacteria is mainly based on cultivation procedures, which use enrichment broths followed by the isolation of colonies on selective media, biochemical identification and confirmation of pathogenicity.

This culture method is selective for the search of one type of pathogen at a time. Currently, both ISO and AOAC official methods are based on these principles.

Here at GVS, we have successfully developed many new microbiology count plate based on selective medium to enumerate the food microorganisms in various samples. In this leaflet, you will find the details and ordering information.

We guarantee you a rapid, sensitive, reliable, reproducible result.





Readily-Usable MicroPad Microbiology Enumeration Medium



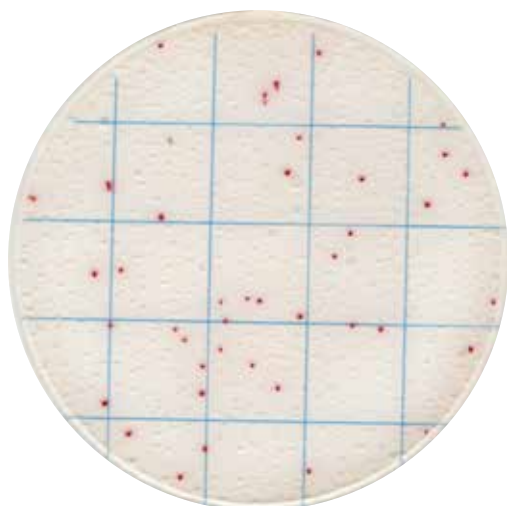
Less time & less labor work

ISO & AOAC standards compatible

No more culture medium preparation

No extra reagent required

1-24-C Easy Determination



1ml Sample Suspension

1ml of solid sample suspension or 1ml liquid sample in PBS, adjust the pH to neutral.

24h Incubation

Incubate at 36 °C for 22 - 24h.

Check the result

Enumerate the colonies according to the kit instruction manual. Further identification can be performed if necessary.

Ordering information

Product Code	Description	Result	Incubation
MCPG00125	Aerobic Count Plate	Red colony	36±1°C ,48±2h
MCPG00225	Staph Count Plate	Dark purple red colony	36±1°C ,24±2h
MCPG00325	Pivot E. coli / Coliform Count Plate	Blue purple colony	36±1°C , 24±2h
MCPG00425	Pivot Coliform Count Plate	Green colony	36±1°C ,24±2h
MCPG00525	Listeria Count Plate	Blue green colony	36±1°C ,24±2h
MCPG00825	Yeast & Mould Count Plate	Green colony	28±1°C ,48-2h
MCPG01025	Coliform Count Plate	Red colony	36±1°C ,18-24h
MCPG01125	E.coli / Coliform Count Plate	Blue purple & red colony	36±1°C ,18-24h

Readily-Usable MicroPad Microbiology Enumeration Medium



Less time & less labor work

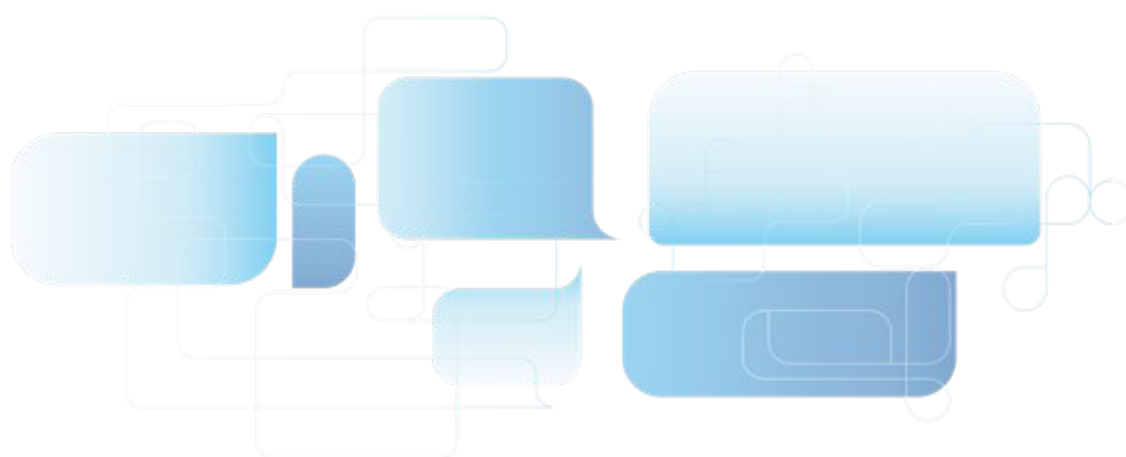
ISO & AOAC standards compatible

No more culture medium preparation

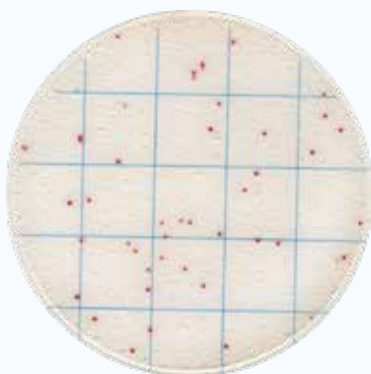
No extra reagent required

Ordering information

Product Code	Description	Result	Incubation
MCPG01325	Bacillus Cereus Count Plate	Purple red colony	36±1°C , 48±2h
MCPG01425	Lactic Acid Bacteria Count Plate	Red colony	36±1°C , 48±2h
MCPG01525	Salmonella Count Plate	Purple red colony	36±1°C , 24±2h
MCPG01625	Enterobacteriaceae Count Plate	Red colony	36±1°C , 18-24h
MCPG01725	Geobacillus s. Count Plate	Red colony	55±1°C , 36±1h
MCPG01825	Enterococcus f. Count Plate	Black, black green colony	36±1°C , 26±2h
MCPG01925	Bacillus Psychrophilus Count Plate	Red colony	21±1°C , 48-60h
MCPG02425	Aerobic Bacillus Count Plate	Red colony	36 ±1°C , 24±2h
MCPG02525	Shigella Count Plate	Red colony	36 ±1°C , 24-48h
MCPG02625	Listeria m. Count Plate	Blue green colony	36±1°C , 36h
MCPG02725	E.Coli O157 Count Plate	Gray colony with halo	36±1°C , 18-24h
MCPG02825	Vibrio parahaemolyticus Count Plate	Red colony	36±1°C , 8-18h
MCPG02925	Psychrophilic Bacteria Count Plate	Red colony	21±1°C , 28-30h



MicroPad Aerobic Count Plate



Product Code: MCPG00125

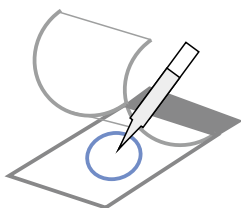
25 plates / pack

Aerobic Count Plate (ACP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of aerobic colonies after 48h – 72h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

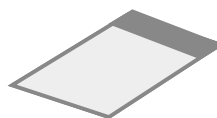
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



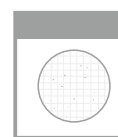
Sample Preparation



Sampling



Incubation



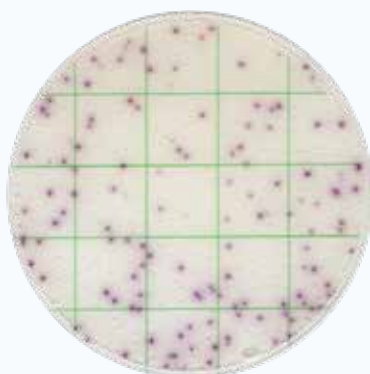
Enumeration

Aerobic Count Plate is applicable for the counting of as many as 65 aerobic bacteria. All will produce red colonies for counting, regardless of the size and clarity.

The following bacteria has been tested successfully with this count plate

ATCC 8099, CICC 10305, ATCC 25922, CICC 10003, CICC 10389, CICC 10907, CICC 21530, CICC 10667, CICC 24190, CICC 24186, CICC 24188, CICC 24187, ATCC 25955, ATCC 10031, ATCC 13883, ATCC 13048, ATCC 29544, ATCC 25931, ATCC 12022, CICC 10865, CICC 23829, CICC 21534, CICC 21535, ATCC 9207, ATCC 15947, ATCC 51114, ATCC 43864, ATCC 25405, GDMCC 1.163, ATCC 13311, CICC 21501, CICC 21495, CICC 21512, CICC 21501, ATCC 27511, ATCC 33291, ATCC 43478, CICC 10869, ATCC 19433, ATCC 19258, CICC 20247, ATCC 8014, CICC 6009, ATCC 6538, ATCC 25923, CICC 10384, ATCC 27217, ATCC 12228, CMCC 26069, CICC 21602, ATCC 8032, ATCC 33090, ATCC 19111, ATCC 35967, ATCC 19119, ATCC 35897, ATCC 25401, CICC 20483, CICC 21261, ATCC 11778, ATCC 6633, CICC 10071, etc.

MicroPad Staphylococcus aureus Count Plate



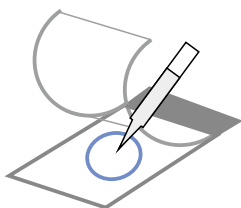
Product Code: MCPG00225 25 plates / pack

Staphylococcus aureus Count Plate is a sample-ready-culture medium system which contains readymade Baird-Parker medium, a cold-water-soluble gelling agent indicator and selective inhibitor. It can be used in direct counting of staphylococcus aureus colonies after 24h incubation. The result is consistent with ISO standards and commercial counting plates.

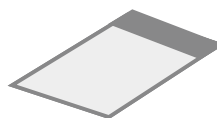
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



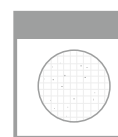
Sample Preparation



Sampling



Incubation



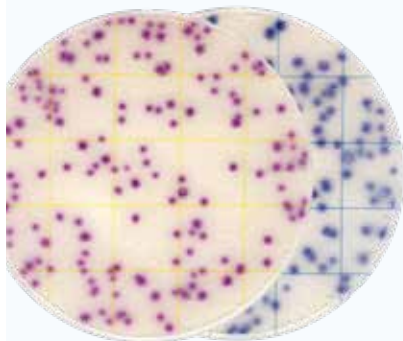
Enumeration

Incubate the plates at 36 ± 1 °C for 24 ± 2 hours.

For aquatic products, please incubate at 30 ± 1 °C for 72 ± 3 hours for. Up to 6 plates can be stacked in one incubation holder.

On this Staphylococcus aureus count plate, Staphylococcus aureus is red colonies, other staphylococcus is light pink green or colorless colonies. Majority of gram-negative and other gram-positive bacterium cannot grow in this plate, or they can present as blue colonies.

MicroPad Pivot E. coli/Coliform Count Plate



Product Code: MCPG00325

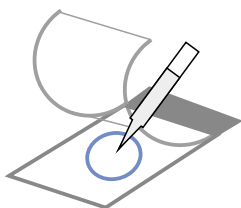
25 plates / pack

Pivot E. coli/Coliform Count Plate (ECCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of E. coli and Coliform colonies after 24h incubation.

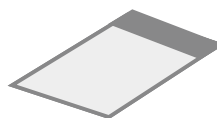
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



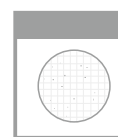
Sample Preparation



Sampling



Incubation



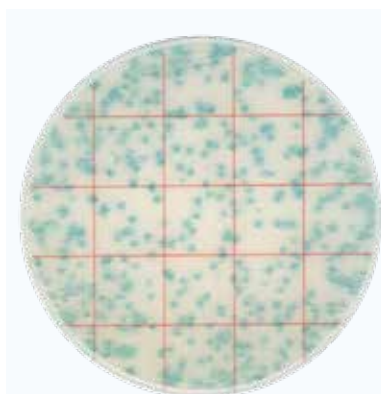
Enumeration

Incubate the plates at 36 ± 1 °C for 24 ± 2 hours. Up to 6 plates can be stacked in one incubation holder.

Counting of Coliform: Count colonies within 15-150 CFU. All red or blue colonies shall be counted regardless of the size or intensity.

Counting of E. coli: Count colonies within 10-100 CFU. All blue colonies shall be counted regardless of the size or intensity.

MicroPad Pivot Coliform Count Plate



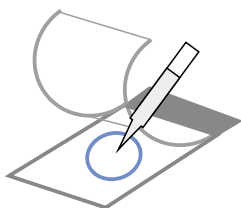
Product Code: MCPG00425 **25 plates / pack**

Pivot Coliform Count Plate (CCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of coliform colonies after 24h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

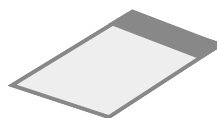
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



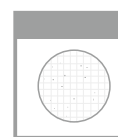
Sample Preparation



Sampling



Incubation



Enumeration

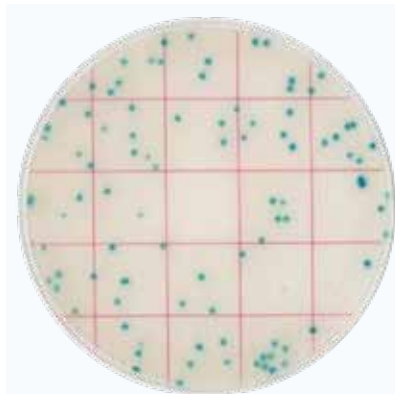
This Pivot Coliform Count Plate (CCP) can be used in the quantitative plating of Coliform Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All green colonies shall be counted regardless of the size or intensity.

Count colonies within 15-150 CFU, count all the green colonies.



MicroPad Listeria Count Plate



Product Code: MCPG00525

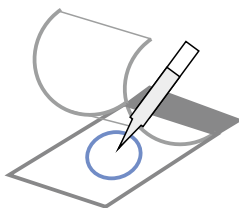
25 plates / pack

Aerobic Count Plate (ACP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of aerobic colonies after 48h – 72h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

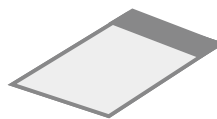
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



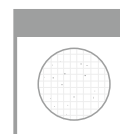
Sample Preparation



Sampling



Incubation



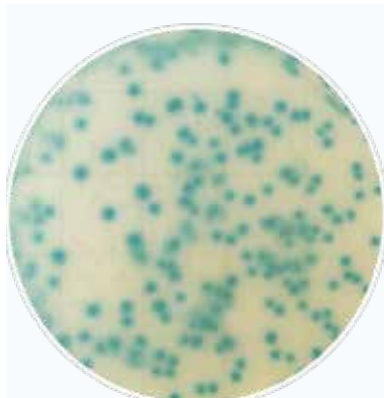
Enumeration

This Listeria Count Plate can be used in the quantitative plating of Listeria Colonies in the food, food material, water and production environment.

Quantitative counting of the plate can be done by a standard colony counter or by software. All green colonies shall be counted regardless of the size or intensity.

Count colonies within 30-200 CFU, count all the green colonies.

MicroPad Yeast & Mould Count Plate



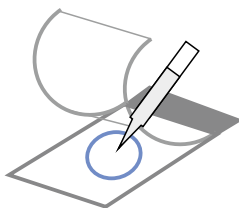
Product Code: MCPG00825 25 plates / pack

Yeast Mould Count Plate (YM) is a sample-ready-culture medium system which contains ready-made dry medium, somatomedin, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of yeast and mould colonies after 2-3 days' incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

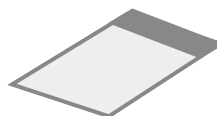
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



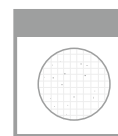
Sample Preparation



Sampling



Incubation



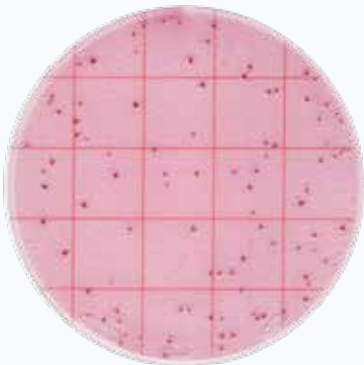
Enumeration

This Yeast Mould Count Plate can be used in the quantitative plating of yeast and mould colonies in the heat-processed product.

Quantitative counting of the plate can be done by a standard colony counter or by software. All green colonies shall be counted regardless of the size or intensity.

Count colonies within 10-150 CFU, count all the green colonies.

MicroPad Coliform Count Plate



Product Code: MCPG01025

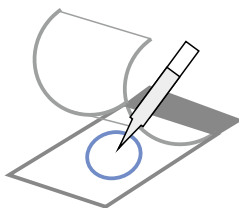
25 plates / pack

which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of coliform colonies after 18h – 24h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

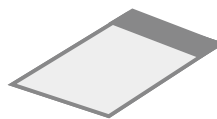
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



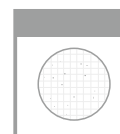
Sample Preparation



Sampling



Incubation



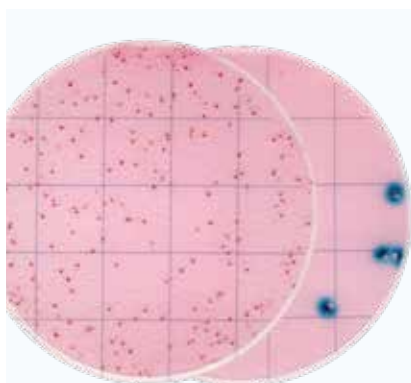
Enumeration

This Coliform Count Plate can be used in the quantitative plating of Coliform Colonies in the food and beverage industries. Incubate the plates at 36 ± 1 °C for 18-24 hours. Up to 6 plates can be stacked in one incubation holder.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count colonies within 15-150 CFU, count all the red colonies.

MicroPad E. coli/Coliform Count Plate



Product Code: MCPG01125

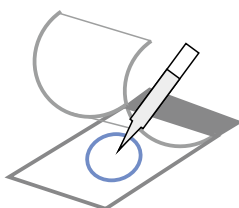
25 plates / pack

E. coli/Coliform Count Plate is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of E. coli/Coliform colonies after 18-24h incubation. The result is consistent with the ISO standards and other commercial plates.

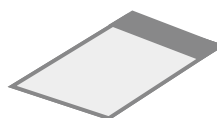
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



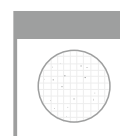
Sample Preparation



Sampling



Incubation

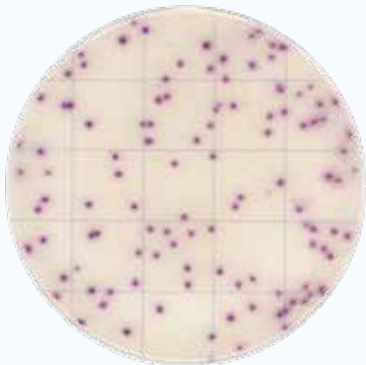


Enumeration

This E. coli/Coliform Count Plate can be used in the quantitative plating of E. coli/Coliform Colonies in the food and beverage industries.

Coliform can grow in this plate, Escherichia Coli are blue colonies associated with gas bubble, Klebsiella pneumonia and enterobacter cloacae are red colonies associated with gas bubble, Citrobacter are red colonies without gas bubble. Other gram-negative bacterium (Salmonella, Shigella) can grow in this plate, their colonies are red without gas bubble. Enterobacter Sakazakii can grow in this plate, its colonies are red associated with gas bubble.

MicroPad Bacillus cereus Count Plate



Product Code: MCPG01325

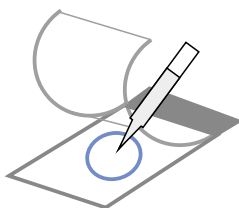
25 plates / pack

Bacillus cereus Count Plate (BCCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Bacillus cereus colonies after 24h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

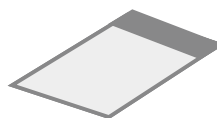
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



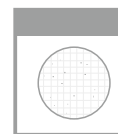
Sample Preparation



Sampling



Incubation



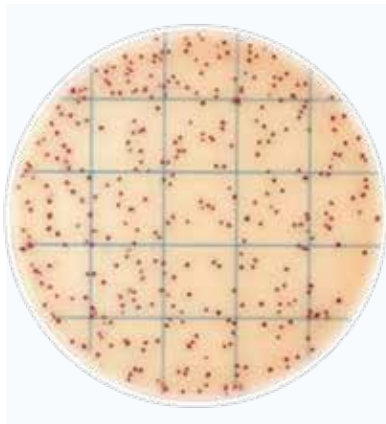
Enumeration

This Bacillus cereus Count Plate (BCCP) can be used in the quantitative plating of Bacillus cereus Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All purple red colonies shall be counted regardless of the size or intensity.

Count colonies within 20-200 CFU, count all the purple red colonies.

MicroPad Lactic Acid Bacteria Count Plate



Product Code: MCPG01425

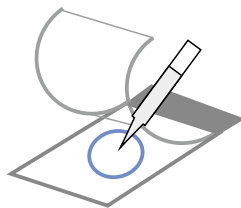
25 plates / pack

Lactic Acid Bacteria Count Plate (LABP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Salmonella colonies after 24h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

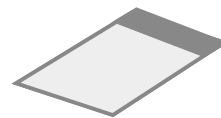
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



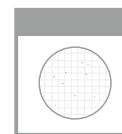
Sample Preparation



Sampling



Incubation



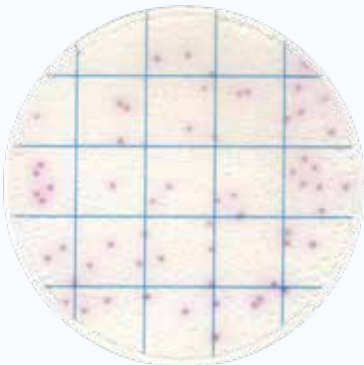
Enumeration

This Lactic Acid Bacteria Count Plate (LABP) can be used in the quantitative plating of Lactic Acid Bacteria Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count colonies within 30-300 CFU, count all the red colonies.

MicroPad Salmonella Count Plate



Product Code: MCPG01525

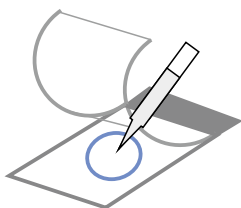
25 plates / pack

Salmonella Count Plate (SCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Salmonella colonies after 24h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

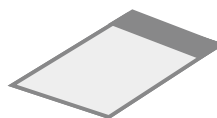
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



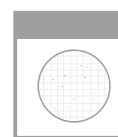
Sample Preparation



Sampling



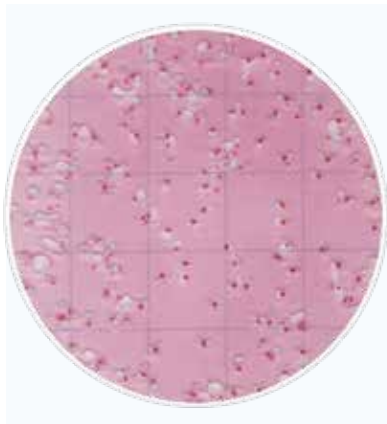
Incubation



Enumeration

This Salmonella Count Plate (SCP) can be used in the quantitative plating of Salmonella Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details. Quantitative counting of the plate can be done by a standard colony counter or by software. All purple red colonies shall be counted regardless of the size or intensity. Count colonies within 30-200 CFU, count all the purple red colonies.

MicroPad Enterobacteriaceae Count Plate

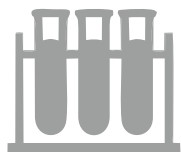


Product Code: MCPG01625

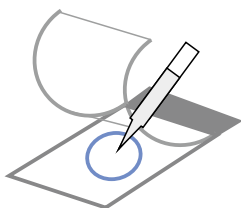
25 plates / pack

Enterobacteriaceae Count Plate (EBCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Enterobacteriaceae colonies after 24h incubation. The result is consistent with the corresponding ISO standards and other commercial plates.

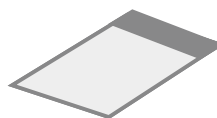
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



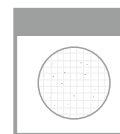
Sample Preparation



Sampling



Incubation



Enumeration

This Enterobacteriaceae Count Plate (EBCP) can be used in the quantitative plating of Enterobacteriaceae Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count colonies within 15-150 CFU, count all the red colonies.



MicroPad Geobacillus stearothermophilus Count Plate



Product Code: MCPG01725

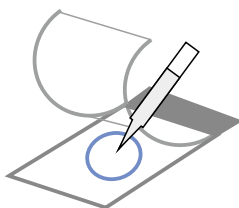
25 plates / pack

Geobacillus stearothermophilus Count Plate (GSCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Geobacillus stearothermophilus colonies after 36h incubation. The result is consistent with the corresponding ISO standards.

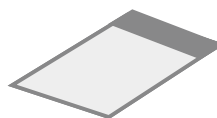
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



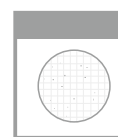
Sample Preparation



Sampling



Incubation



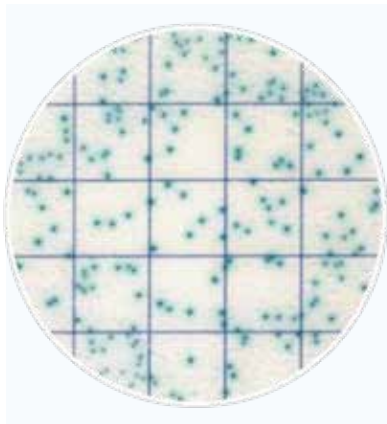
Enumeration

This Geobacillus stearothermophilus Count Plate (GSCP) can be used in the quantitative plating of Geobacillus stearothermophilus Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count colonies within 10-150 CFU, count all the red colonies.

MicroPad Enterococcus faecalis Count Plate

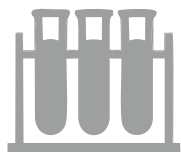


Product Code: MCPG01825

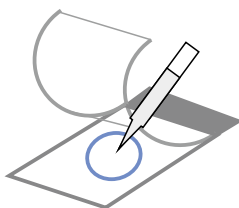
25 plates / pack

Enterococcus faecalis Count Plate (EFCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Enterococcus faecalis colonies after 24h incubation. The result is consistent with the corresponding ISO standards and other commercial plates.

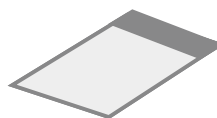
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



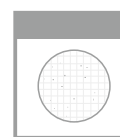
Sample Preparation



Sampling



Incubation



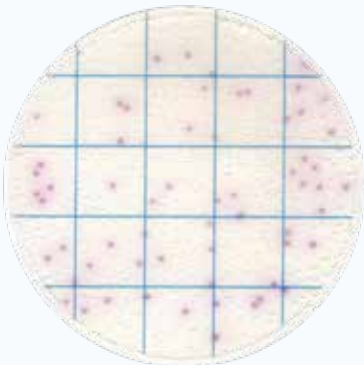
Enumeration

This Enterococcus faecalis Count Plate (SCP) can be used in the quantitative plating of Enterococcus faecalis Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All purple red colonies shall be counted regardless of the size or intensity.

Count colonies within 20-100 CFU, count all the dark colonies with blue halo.

MicroPad Bacillus Psychrophilus Count Plate



Product Code: MCPG01925

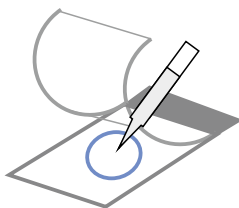
25 plates / pack

Bacillus Psychrophilus Count Plate (BPCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of bacillus psychrophilus colonies after 48-60h incubation. The result is consistent with the corresponding ISO standards and other commercial plates.

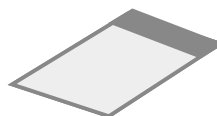
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



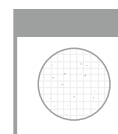
Sample Preparation



Sampling



Incubation



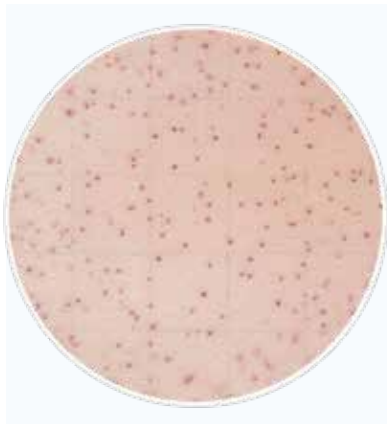
Enumeration

This Bacillus Psychrophilus Count Plate (BPCP) can be used in the quantitative plating of Bacillus Psychrophilus Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count colonies within 10-150 CFU, count all the red colonies.

MicroPad Aerobic Bacillus Count Plate

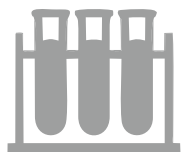


Product Code: MCPG02425

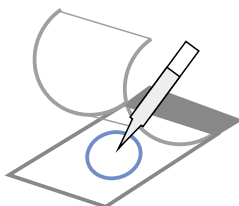
25 plates / pack

Aerobic Bacillus Count Plate (ABCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of aerobic bacillus colonies after 24h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

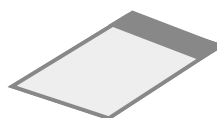
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



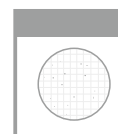
Sample Preparation



Sampling



Incubation



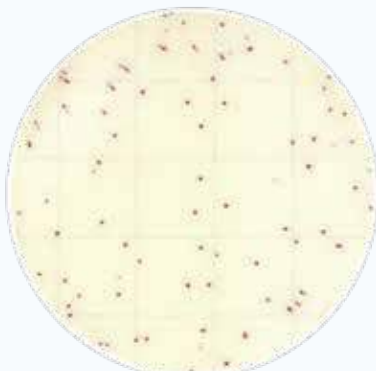
Enumeration

This Aerobic Bacillus Count Plate (ABCP) can be used in the quantitative plating of Aerobic Bacillus Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count colonies within 10-150 CFU, count all the purple red colonies.

MicroPad Shigella Count Plate



Product Code: MCPG02525

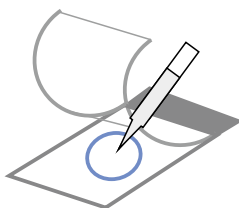
25 plates / pack

Shigella Count Plate (SHCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Shigella colonies after 24-48h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

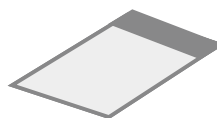
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



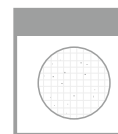
Sample Preparation



Sampling



Incubation



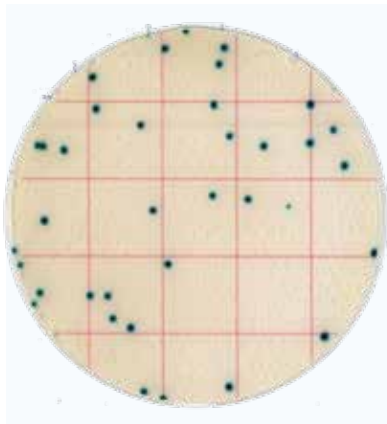
Enumeration

This Shigella Count Plate (SHCP) can be used in the quantitative plating of Salmonella Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count all the red colonies.

MicroPad Listeria M. Count Plate



Product Code: MCPG02625

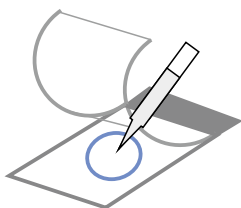
25 plates / pack

Listeria M. Count Plate (LMCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of listeria monocytogenes colonies after 36h incubation. The result is consistent with the corresponding ISO standards and other commercial plates.

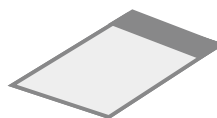
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



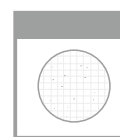
Sample Preparation



Sampling



Incubation



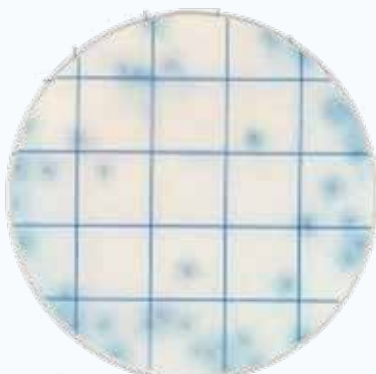
Enumeration

This Listeria M. Count Plate (LMCP) can be used in the quantitative plating of Listeria Monocytogenes Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All blue green colonies shall be counted regardless of the size or intensity.

Enrichment is needed before testing with this count plate.

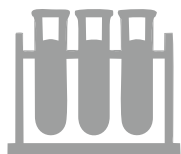
MicroPad E.Coli 0157 Count Plate



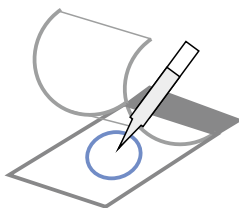
Product Code: MCPG02725 **25 plates / pack**

E. Coli 0157 Count Plate (ECOCP) is a sample-ready-culture medium system which contains ready made dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of E. Coli 0157 colonies after 24h incubation. The result is consistent with the corresponding ISO standards and other commercial counting plates.

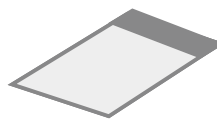
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



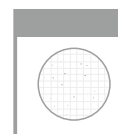
Sample Preparation



Sampling



Incubation

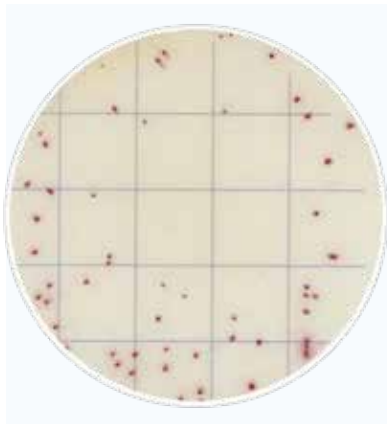


Enumeration

This E. Coli 0157 Count Plate (ECOCP) can be used in the quantitative plating of E. Coli 0157 Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. E.Coli 0157 colonies are gray with dark-blue halo, higher concentration of colonies may lead to dark background. Please further dilute the sample for enumeration. Count the gray colonies with dark-blue halo.

MicroPad Vibrio parahaemolyticus Count Plate



Product Code: MCPG02825

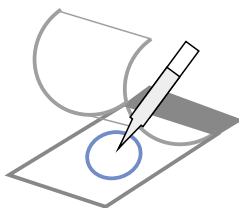
25 plates / pack

Vibrio Parahaemolyticus Count Plate (VPCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Vibrio Parahaemolyticus colonies after 8-18h incubation. The result is consistent with the corresponding ISO standards and other commercial plates.

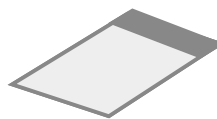
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



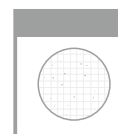
Sample Preparation



Sampling



Incubation



Enumeration

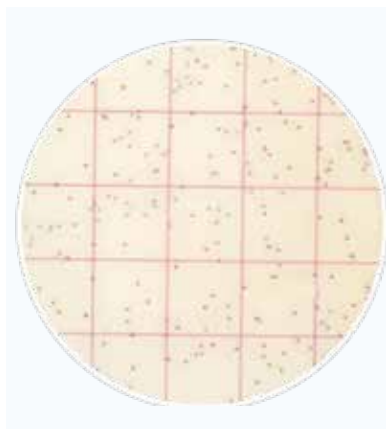
This Vibrio Parahaemolyticus Count Plate (VPCP) can be used in the quantitative plating of Vibrio Parahaemolyticus Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count all the red colonies.



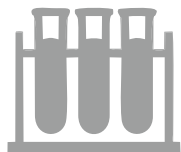
MicroPad Psychrophilic Bacteria Count Plate



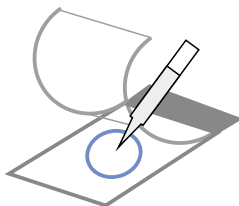
Product Code: MCPG02925 **25 plates / pack**

Psychrophilic Bacteria Count Plate (PBCP) is a sample-ready-culture medium system which contains readymade dry medium, a cold-water-soluble gelling agent and indicator. It can be used in direct counting of Psychrophilic Bacteria colonies after 28-30h incubation. The result is consistent with the corresponding ISO standards and other commercial plates.

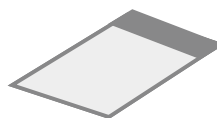
Read the user manual carefully before test, and follow the instructions. Failure to do so may lead to inaccurate results.



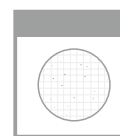
Sample Preparation



Sampling



Incubation



Enumeration

This Psychrophilic Bacteria Count Plate (PBCP) can be used in the quantitative plating of Psychrophilic Bacteria Colonies in the food and beverage industries. Other applications are available upon request. Contact your supplier for more details.

Quantitative counting of the plate can be done by a standard colony counter or by software. All red colonies shall be counted regardless of the size or intensity.

Count colonies within 10-300 CFU, count all the red colonies.

MilkKit

Milk Rapid Test Kit

World-class quality at affordable cost



MilkKit tests can be used to monitor antibiotic residues and mycotoxins, melamines, etc in milk and various food samples.

Veterianry Drug Residue Rapid Test Kit

Major veterinary antibiotics, steroids, hormones, disinfectants, detergents, testing of bovine IgG, bovine lactoferrin, vitamin, as well etc. as testing cow milk added into goat or camel milk, etc.

Milk Nutrition & Milk fraud Rapid Test Kit

as testing cow milk added into goat or camel milk, etc.

Pesticide Residue Rapid Test Kit

Important pesticides, herbicides, etc.

Test Equipment for Milk Tests

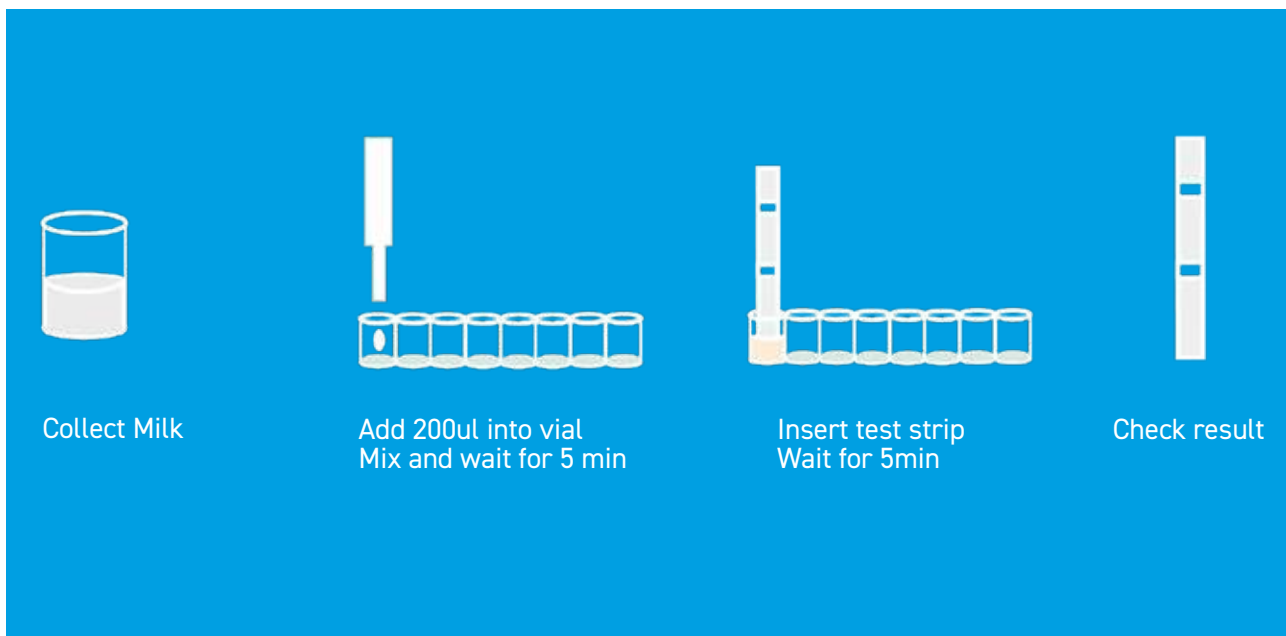
from portable reader system to desktop reader system to ensure the visualize of test data and printing.

Mycotoxin Rapid Test Kit

for aflatoxin M1 testing, ranging from EU MRL, USA MRL to Codex MRL, 0.5ppb, 0.05ppb, 0.3ppb, 0.4ppb, etc.



General Step for milk testing





-lactams & tetracyclines, BT Combo Test Kit

A lateral flow rapid test kit based on receptor assay to detect multiple -lactams & tetracyclines antibiotics in 10min.

Ordering information

Product Code	Reaction Mode	Detection Level
TESTMIRA2002A	5'+5', room temp.	EU MRL

-lactams & tetracyclines & sulfa drugs, BTS TriTest 3in1

A lateral flow rapid test kit based on receptor assay to detect multiple -lactams & tetracyclines & sulfa antibiotics in 6min.

Ordering information

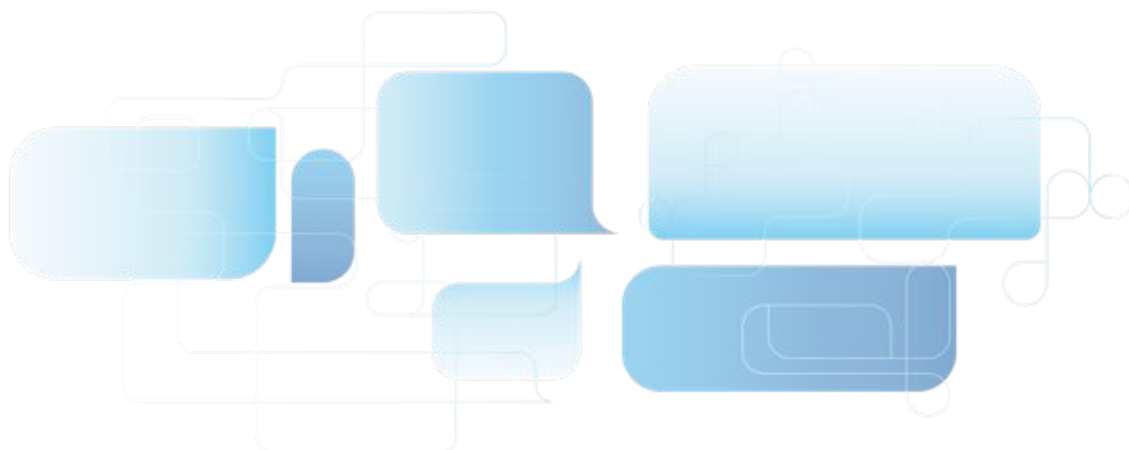
Product Code	Reaction Mode	Detection Level
TESTMIRA0015A	3'+3', room temp.	EU MRL

Kit Component

- A 12 tubes of rapid tests, 8 strips per tube
- A Microwell holder
- A Plastic pipette or micropipette tips
- A Kit instruction

Samples

- A Raw milk, UHT milk, pasteurized milk, etc.
- A Water, meat, egg, honey, etc.





-lactams & tetracyclines & sulfa & quinolones, BTSQ QuaTest 4in1

A lateral flow rapid test kit based on receptor assay to detect multiple -lactams & tetracyclines & sulfa antibiotics in 6min.

Ordering information

Product Code	Reaction Mode	Detection Level
TESTMIRA0029A	3'+7', room temp.	EU MRL

-lactams & tetracyclines & streptomycin & CAP, BTSC QuaTest 4in1

A lateral flow rapid test kit based on receptor assay to detect multiple beta-lactams, tetracyclines, streptomycin & chloramphenicol antibiotics in 10min.

Ordering information

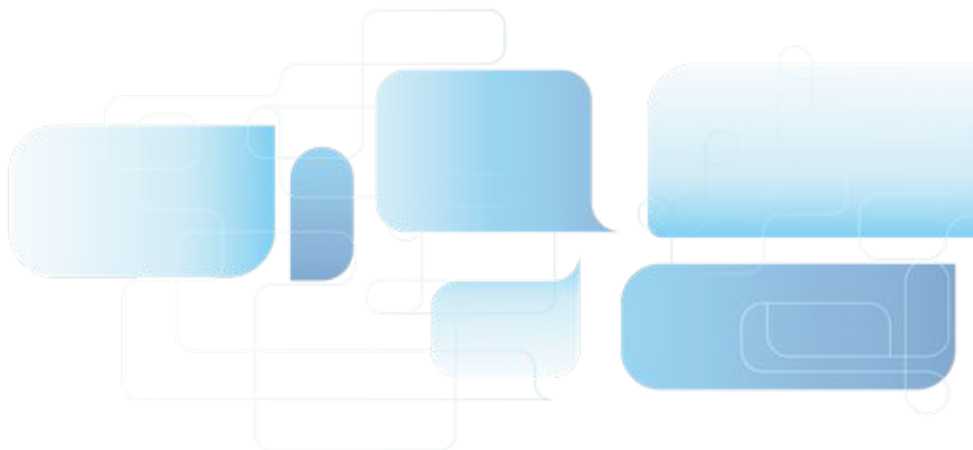
Product Code	Reaction Mode	Detection Level
TESTMIRA0018A	3'+7', room temp.	EU MRL

Kit Component

- A 12 tubes of rapid tests, 8 strips per tube
- A Microwell holder
- A Plastic pipette or micropipette tips
- A Kit instruction

Samples

- A Raw milk, UHT milk, pasteurized milk, etc.
- A Water, meat, egg, honey, etc.





Aminoglycosides, GNKS QuaTest 4in1

A lateral flow rapid test kit based on receptor assay to detect multiple gentamicin, neomycin, kanamycin & streptomycin antibiotics in 10min.

Ordering information

Product Code	Reaction Mode	Detection Level
TESTMIRA0025A	3'+7', room temp.	EU MRL

Quinolones, macrolides, lincomycin, erythromycin, QMLE QuaTest 4in1

A lateral flow rapid test kit based on receptor assay to detect multiple quinolones, macrolides, lincomycin, erythromycin antibiotics in 10min.

Ordering information

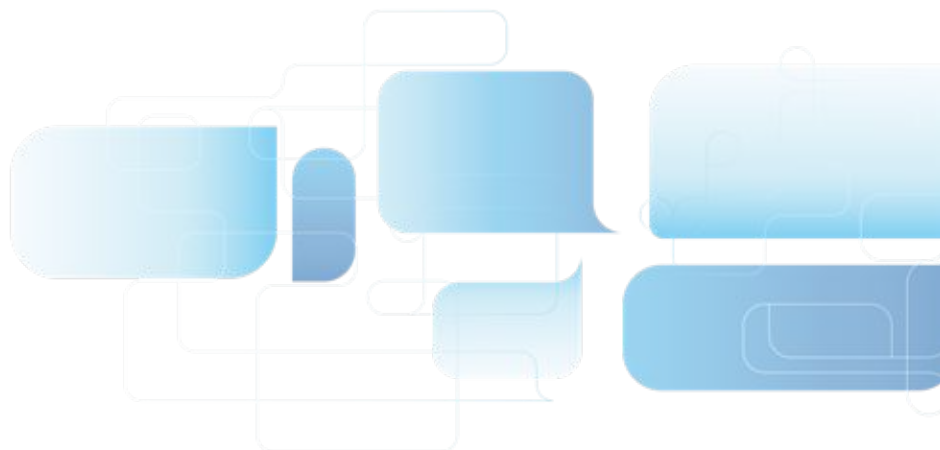
Product Code	Reaction Mode	Detection Level
TESTMIRA0024A	3'+7', room temp.	EU MRL

Kit Component

- A 12 tubes of rapid tests, 8 strips per tube
- A Microwell holder
- A Plastic pipette or micropipette tips
- A Kit instruction

Samples

- A Raw milk, UHT milk, pasteurized milk, etc.
- A Water, meat, egg, honey, etc.



Test Equipment and Devices



Ordering information

Product Code	Product Description
TESTINR1303A	Reader Fast 2 system - the quick and smaller model
TESTINR1304A	Minipipet for test kit, 200ul
TESTINR1305A	Mini Incubator - heating block for rapid tests
TESTINR1307A	ATP fluorescence detector - ATP Reader

Q3 system Desktop Rapid Test Reader

Ordering information: TESTINR1301A

Weight	3.0kg
Dimension	320mm x 195mm x 156mm
Wavelength	525±30nm
Precision	C.V. ≤3%
Display	6.2Inch LCD
Printer	Built-in thermal printer
Memory	4GB built-in/flash drive



Fast 2 system Desktop Rapid Test Reader

Weight	1.0kg
Dimension	210mm x 175mm x 75mm
Wavelength	525±30nm
Precision	C.V. ≤2%
Display	3.5Inch LCD
Printer	Built-in thermal printer
Memory	50000 entries

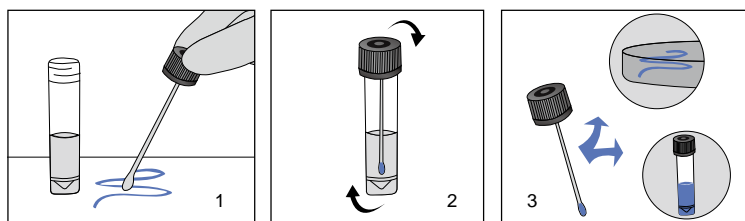


Environmental Surface Collection

Effective sampling of surfaces requires moisture, either already present on the surface to be sampled or via moistened swabs, sponges, wipes, agar surfaces, or membrane filters. GVS provides dilution fluids and rinse fluids include various buffers or general-purpose broth media, for environmental sampling applied in the food, pharmaceutical, biotechnology and cosmetic industries.

Available in 10mL fill volumes, with high-quality foam swab. The swab can be securely attached to the cap and makes a convenient "handle" for great control when sampling.

Convenient Use



- 1.Pre-moistening the tip of swab withbroth and then collecting sample by rubbing.
- 2.Returning the swab head to the broth after swabbing each area.
- 3.Shaking the tube vigorously, then plating the sample into the appropriate media and culturing for analysis.



Note: This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.
Packing: 50tubes/rack/inner box, 8x50tubes/case

Neutralizing solution

Neutralizing solution is recommended for detection of microorganisms found on dairy and food equipment disinfected with chlorine or quaternary ammonium compounds. The medium usually contains lecithin, polysorbate 80, and sodium thiosulphate, which is used for neutralizing antibacterial or anti-microbial cleansing agents on surfaces in order to paint a clear picture of any bacteria present.

Neutralizing Solution (PBS)

Product Code	Tube	VOL.	Swab
ESCKC2118X1601A	10ml	10ml	1 separate regular foam swab
ESCKC2118X1651A	10ml	10ml	1 regular foam swab attached cap in tube

Neutralizing Solution (Saline Solution)

Product Code	Tube	VOL.	Swab
ESCKC2118X1602A	10ml	10ml	1 separate regular foam swab
ESCKC2118X1652A	10ml	10ml	1 regular foam swab attached cap in tube

Buffered Peptone Water

Buffered Peptone Water is a pre-enriched nonselective buffered solution. It allows for the repair of damaged cells and facilitates the recovery of target bacteria in samples for detection of salmonella in food and dairy plants.

Product Code	Tube	VOL.	Swab
ESCKC2118X1603A	10ml	10ml	1 separate regular foam swab
ESCKC2118X1653A	10ml	10ml	1 regular foam swab attached cap in tube



Lethen Broth

Lethen Broth is recommended for use in qualitative procedures for testing quaternary ammonium compounds for antimicrobial activity. It is a growth medium supplied with neutralizing reagent, such as Lecithin neutralizes quaternary ammonium compounds and polysorbate 80 neutralizes phenolic disinfectants, hexachlorophene, and formalin.

Product Code	TUBE	VOL.	SWAB
ESCKC2118X1604A	10ml	10ml	1 separate regular foam swab
ESCKC2118X1654A	10ml	10ml	1 regular foam swab attached cap in tube

Butterfield's Solution

Butterfield's Solution is a liquid medium recommended for use in qualitative procedure as a diluent in microbial limit testing of pharmaceutical products and in food testing. It was developed to provide a standardized medium for the preparation of sample dilutions, which eliminates the variations in pH associated with the use of distilled water.

Product Code	Tube	VOL.	Swab
ESCKC2118X1605A	10ml	10ml	1 separate regular foam swab
ESCKC2118X1655A	10ml	10ml	1 regular foam swab attached cap in tube

D/E Neutralizing Broth

D/E Neutralizing Broth is a liquid medium recommended for use in qualitative procedures for environmental sampling where neutralization of the chemical is important to determine its bactericidal or bacteriostatic activity. This medium will neutralize a broad spectrum of antiseptic and disinfectant chemicals, including mercurial, iodine and chlorine preparations, quaternary ammonium compounds, phenolics, formaldehyde and glutaraldehyde. Growth is indicated by a color change from purple to yellow, and / or cloudiness.

Product Code	Tube	VOL.	Swab
ESCKC2118X1606A	10ml	10ml	1 separate regular foam swab
ESCKC2118X1656A	10ml	10ml	1 regular foam swab attached cap in tube

Neutralizing Buffered Peptone Water

Neutralizing Buffered Peptone Water is recommended for use in the recovery of injured Salmonella species from industrial samples prior to selective enrichment and isolation, such as poultry rinses and food samples. It contains neutralizing agents to reduce the inhibitory effects of carryover from antimicrobial interventions.

Product Code	Tube	VOL.	Swab
ESCKC2118X1607A	10ml	10ml	1 separate regular foam swab
ESCKC2118X1657A	10ml	10ml	1 regular foam swab attached cap in tube



Petri Dishes, Plastic Material



- A Non-cytotoxic virgin polystyrene, excellent optical clarity
- A Engineered for optimum flatness to provide uniform agar thickness

- A Single or more vents are available: no-vent for anaerobic and long-term work, single vent for limiting gas exchange, multi vents for improving gas exchange



General petri Dishes

90 and 150mm Petri dishes are manufactured in accordance with standard ISO 24998:2008, ideal for use with most automatic filling machine.

Product Code	Description	Quantity
PETRIDPC035151NVS	Ø 35×15 mm, 1 Room	10 pcs / polybag, 300 pcs / carton
PETRIDPC049131NVS	Ø 49 ×13 mm, 1 Room	10 pcs / polybag, 1,000 pcs / carton
PETRIDPC055151NVS	Ø 55×15 mm, 1 Room	10 pcs / polybag, 1,000 pcs / carton
PETRIDPC0601613VA	Ø 60×16mm, 1 Room / 3 vents	10 pcs / polybag, 1,200 pcs / carton
PETRIDPC070151NVS	Ø 70 × 15 mm, 1 Room	20 pcs / polybag, 800 pcs / carton
PETRIDPC0901613VA	Ø 90 × 16 mm, 1 Room / 3 vents	10 pcs / polybag, 500 pcs / carton
PETRIDPC1501513VS	Ø 150 × 15 mm, 1 Room / 3 vents	10 pcs / polybag, 200 pcs / carton

Compartmented Dishes

Ideal for different media on same dish, or meet the requirement of saving incubator space.

Product Code	Description	Quantity
PETRIDPC0901523VS	Ø 90 × 15mm, 2 Rooms / 3 vents	10 pcs / polybag, 500 pcs / carton
PETRIDPC0901533VS	Ø 90 × 15mm, 3 Rooms / 3 vents	10 pcs / polybag, 500 pcs / carton

Square Dishes

Noncompartmented, ideal for antibiotic sensitivity testing.

Product Code	Description	Quantity
PETRIDPS130151NVS	Ø 130 × 130 × 15 mm, 1 Room	10 pcs / polybag, 150 pcs / carton

Contact Plates

10×10mm counting net, alphanumeric, facilitates colony counting and locating.

Product Code	Description	Quantity
PETRIDPC0651513VS	Ø 65 × 15 mm, 1 Room / 3 vents	10 pcs / polybag, 1,000 pcs / carton

Plastic Loops

STERILE R

Disposables for collection and inoculation by streaking or puncturing method

- ASmooth surface, guarantee the even and fluent streaking
- AColor-coded sizes for easy identification
- APolygonal shaft is easy to grasp, operate and control it's direction

- ARigid and flexible loops available upon requests
- ASupplied with Individual peel pack (easy peel-open) and Zip-lock pack (tamperproof and re-sealable), eliminates the risk of contamination



Packing:
Type A:20pcs/zip-lock pack, 1,000pcs/dispenser box, 10,000pcs/carton
Type B:10pcs/zip-lock pack, 1,000pcs/dispenser box, 10,000pcs/carton
Type C:5pcs/zip-lock pack, 500pcs/dispenser box, 5,000pcs/carton
Type D:individual peel pack,500pcs/dispenser box, 5,000pcs/carton

ZIP-LOCK-PACK



Hexagonal shaft with stripes

Rigid Loops

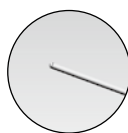
PS material, hexagonal shaft with stripes, ideal for collection of single colony and inoculation by puncturing



1µL Loop



10µL Loop



Needle

Color: Neutral

Product Code	Packing
CELCUCG2121X1001S	Type A
CELCUCG2121X1002S	Type B
CELCUCG2121X1003S	Type C
CELCUCG2121X1004S	Type D

Color: Blue

Product Code	Packing
CELCUCG2121X1005S	Type A
CELCUCG2121X1006S	Type B
CELCUCG2121X1007S	Type C
CELCUCG2121X1008S	Type D

Color: Violet

Product Code	Packing
CELCUCG2121X1009S	Type A
CELCUCG2121X1010S	Type B
CELCUCG2121X1011S	Type C
CELCUCG2121X1012S	Type D

Flexible Loops

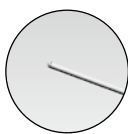
HIPS material, hexagonal shaft with stripes, ideal for inoculation in gel surface by streaking



1µL Loop



10µL Loop



Needle

Color: White

Product Code	Packing
CELCUCG2121X2001S	Type A
CELCUCG2121X2002S	Type B
CELCUCG2121X2003S	Type C
CELCUCG2121X2004S	Type D

Color: Dark blue

Product Code	Packing
CELCUCG2121X2005S	Type A
CELCUCG2121X2006S	Type B
CELCUCG2121X2007S	Type C
CELCUCG2121X2008S	Type D

Color: Yellow

Product Code	Packing
CELCUCG2121X2009S	Type A
CELCUCG2121X2010S	Type B
CELCUCG2121X2011S	Type C
CELCUCG2121X2012S	Type D



Plastic Loops

STERILE R

Disposables for collection and inoculation by streaking or puncturing method

A Smooth surface, guarantee the even and fluent streaking

A Color-coded sizes for easy identification

A Polygonal shaft is easy to grasp, operate and control it's direction

A Rigid and flexible loops available upon requests

A Supplied with Individual peel pack (easy peel-open) and Zip-lock pack (tamperproof and re-sealable), eliminates the risk of contamination



Packing:

Type A: 20pcs/zip-lock pack, 1,000pcs/dispenser box, 10,000pcs/carton

Type B: 10pcs/zip-lock pack, 1,000pcs/dispenser box, 10,000pcs/carton

Type C: 5pcs/zip-lock pack, 500pcs/dispenser box, 5,000pcs/carton

Type D: individual peel pack, 500pcs/dispenser box, 5,000pcs/carton

ZIP-LOCK-PACK



Hexagonal shaft with stripes

Rigid Loops

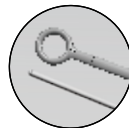
AS material, hexagonal shaft with stripes, ideal for collection single colony and inoculation by puncturing



**1µL Loop+
Incorporated needle**



10µL+1µL Loop



**10µL Loop+
Incorporated needle**

Color: Neutral

Product Code	Packing
CELCUCG2121X0041S	Type A
CELCUCG2121X0042S	Type B
CELCUCG2121X0043S	Type C
CELCUCG2121X0044S	Type D

Color: Yellow

Product Code	Packing
CELCUCG2121X0049S17	Type A
CELCUCG2121X0050S17	Type B
CELCUCG2121X0051S17	Type C
CELCUCG2121X0052S17	Type D

Color: Blue

Product Code	Packing
CELCUCG2121X0045S02	Type A
CELCUCG2121X0046S02	Type B
CELCUCG2121X0047S02	Type C
CELCUCG2121X0048S02	Type D

Flexible Loops

ABS material, quadrangled shaft with stripes, ideal for collection single colony and inoculation by puncturing



**1µL Loop+
Incorporated needle**



10µL+1µL Loop



**10µL Loop+
Incorporated needle**

Color: Neutral

Product Code	Packing
CELCUCG2121X0053S	Type A
CELCUCG2121X0054S	Type B
CELCUCG2121X0055S	Type C
CELCUCG2121X0056S	Type D

Color: Yellow

Product Code	Packing
CELCUCG2121X0061S17	Type A
CELCUCG2121X0062S17	Type B
CELCUCG2121X0063S17	Type C
CELCUCG2121X0064S17	Type D

Color: Blue

Product Code	Packing
CELCUCG2121X0057S02	Type A
CELCUCG2121X0058S02	Type B
CELCUCG2121X0059S02	Type C
CELCUCG2121X0060S02	Type D



Dehydrated Culture Media

01 Total Viable Count (TVC)

Product Code	Product	Description	Qty.
MIMEB1818FA	Plate Count Agar (PCA) (Standards Methods Agar)	Used for enumeration of viable microorganisms. (NMKL)	500 g
MIMEB1819FA	Plate Count Agar (PCA) (Standards Methods Agar)	Used for enumeration of viable microorganisms. (NMKL)	1000g
MIMEB1836FA	Nutrient Broth (NB)	A general-purpose growth medium for bacteria.	500 g
MIMEB1837FA	Nutrient Broth (NB)	A general-purpose growth medium for bacteria	1000g
MIMEB1826FA	Nutrient Agar (NA)	A general-purpose medium for the growth of a wide variety of microorganisms. (AFNOR, AOAC, BSI, FDA, ISO, NMKL)	500 g
MIMEB1827FA	Nutrient Agar (NA)	A general-purpose medium for the growth of a wide variety of microorganisms. (AFNOR, AOAC, BSI, FDA, ISO, NMKL)	1000g
MIMEB1833FA	Tryptone Soya Agar (TSA)	For enumerating and enriching nonfastidious or fastidious bacteria.	500 g
MIMEB1856FA	Tryptic Soy Broth (TSB) (Soybean Casein Digest)	Used for cultivation of a wide variety of nonfastidious microorganisms. (USP)	500 g

02 Coliforms, Escherichia coli (E. coli), fecal coliforms, and other intestinal bacteria

Product Code	Product	Description	Qty.
MIMEB1838FA	Lauryl Sulfate Tryptose Broth (LST)	Used for detecting Coliform bacteria and faecal coliforms by the multiple-tube fermentation technique.	500 g
MIMEB1839FA	Lauryl Sulfate Tryptose Broth (LST)	Used for detecting Coliform bacteria and faecal coliforms by the multiple-tube fermentation technique.	1000g
MIMEB1820FA	Violet Red Bile Glucose Agar (VRBA)	Used for selective and differential isolation of gram-negative bacilli. (USP)	500 g
MIMEB1821FA	Violet Red Bile Glucose Agar (VRBA)	Used for selective and differential isolation of gram-negative bacilli. (USP)	1000g
MIMEB1846FA	EC Broth	Used for detection of coliform bacteria at 37°C and Escherichia coli at 44.5°C. (BAM, EPA, SMWW)	500 g
MIMEB1828FA	MacConkey Agar (MAC)	Used for selective and differential isolation of gram-negative bacilli. (BAM, COMPF, SMWW, USP)	500 g
MIMEB1853FA	Eosin-Methylene Blue Agar (EMB) (Levine Agar)	Used for isolation and differentiation of Enterobacteriaceae.	500 g
MIMEB1851FA	Lactose Bile Fermentation Broth	Used for the detection of coliform bacteria in water, foods and dairy products. (AOAC, BAM, COMPF, EPA, USDA, USP)	500 g
MIMEB1852FA	Lactose Bile Fermentation Broth	Used for the detection of coliform bacteria in water, foods and dairy products. (AOAC, BAM, COMPF, EPA, USDA, USP)	1000g
MIMEB1830FA	Brain Heart Infusion Broth (BHI)	A highly nutritious medium for the growth of fastidious organisms, and suitable for blood cultures. (FDA, NMKL, USDA)	500 g

03 Yeast and mold and other fungi

Product Code	Product	Description	Qty.
MIMEB1823FA	Rose Bengal Agar	Used for selective isolation and enumeration of yeast, and fungi from environmental samples and food.	500 g
MIMEB1824FA	Rose Bengal Agar	Used for selective isolation and enumeration of yeast, and fungi from environmental samples and food.	1000g



Dehydrated Culture Media

04 Salmonella

Product Code	Product	Description	Qty.
MIMEB1840FA	Buffered Peptone Water (BPW)	A pre-enrichment medium for use prior to selective enrichment for the isolation of Salmonella spp. from foods. (AFNOR, BSI, IDF, NMKL)	500 g
MIMEB1842FA	Buffered Peptone Water (BPW)	A pre-enrichment medium for use prior to selective enrichment for the isolation of Salmonella spp. from foods. (AFNOR, BSI, IDF, NMKL)	1000g
MIMEB1841FA	Buffered Peptone Water (BPW)	A pre-enrichment medium for use prior to selective enrichment for the isolation of Salmonella spp. from foods. (AFNOR, BSI, IDF, NMKL)	1000g
MIMEB1849FA	Selenite Cystine Broth	A selective enrichment broth for isolation of Salmonella spp.	500 g
MIMEB1844FA	Tetrathionate Broth Base (TTB)	A selective enrichment medium for use with iodine for the recovery of Salmonella spp.	1000g
MIMEB1843FA	Tetrathionate Broth Base (TTB)	A selective enrichment medium for use with iodine for the recovery of Salmonella spp.	500 g
MIMEB1831FA	Bismuth Sulfite Agar (BS)	Used for selective isolation of Salmonellae from faeces, urine, sewage and other materials.	500 g
MIMEB1860FA	Hektoen Enteric (HE) Agar	A differential selective medium for the isolation of Shigella and Salmonella species. (AFNOR, ISO, NMKL)	500 g
MIMEB1829FA	Triple Sugar Iron (TSI) Agar	Used for the differentiation of microorganisms on the basis of dextrose, lactose and sucrose fermentation and hydrogen sulfide production.	500 g
MIMEB1834FA	Xylose Lysine Desoxycholate (XLD) Agar	Used for selective isolation of Gramnegative bacteria, especially for Salmonella and Shigella. (ISO, FDA, EP, USP)	500 g

05 Staphylococcus aureus

Product Code	Product	Description	Qty.
MIMEB1847FA	7.6% Sodium Chloride Broth	Used for the selective enrichment of Staphylococcus aureus and other salt-tolerant bacteria.	500 g
MIMEB1848FA	7.6% Sodium Chloride Broth	Used for the selective enrichment of Staphylococcus aureus and other salt-tolerant bacteria.	1000g
MIMEB1835FA	Baird-Parker Agar Base	A selective medium for the isolation and enumeration of coagulase positive staphylococci. Do not use with RPF Supplement. (AFNOR, AOAC, BSI, EP, IDF, ISO, NMKL, USDA)	500 g
MIMEB1830FA	Brain Heart Infusion Broth (BHI)	A highly nutritious medium used for the growth of fastidious organisms, and suitable Used for blood cultures. (FDA, NMKL, USDA)	500 g
MIMEB1856FA	Tryptic Soy Broth (TSB) (Soybean Casein Digest)	Used for the cultivation of a wide variety of nonfastidious microorganisms. (USP)	500 g

06 Listeria monocytogenes

Product Code	Product	Description	Qty.
MIMEB1825FA	Listeria Enrichment Broth Base (UVM Formulation)	A two-step selective enrichment (USDA-FSIS) method.	500 g
MIMEB1850FA	PALCAM Agar Base	A selective and diagnostic medium used for the detection of Listeria monocytogenes. (AFNOR, IDF, NMKL)	500 g
MIMEB1822FA	Listeria Chromogenic Medium	Used for chromogenic culture of Listeria and Listeria monocytogenes.	1000 mL

07 Shigella

Product Code	Product	Description	Qty.
MIMEB1845FA	Gram Negative Enrichment Broth (GN Broth)	Used for the selective enrichment of gram-negative microorganisms, especially Salmonella and Shigella. (USDA)	500 g
MIMEB1834FA	Xylose Lysine Desoxycholate (XLD) Agar	Used for selective isolation of Gramnegative bacteria, especially for Salmonella and Shigella. (ISO, FDA, EP, USP)	500 g
MIMEB1828FA	MacConkey Agar (MAC)	Used for selective and differential isolation of gram-negative bacilli. (BAM, COMPF, SMWW, USP)	500 g
MIMEB1829FA	Triple Sugar Iron (TSI) Agar	Used for the differentiation of microorganisms on the basis of dextrose, lactose and sucrose fermentation and hydrogen sulfide production.	500 g
MIMEB1826FA	Nutrient Agar (NA)	A general-purpose medium used for the growth of a wide variety of microorganisms. (AFNOR, AOAC, BSI, FDA, ISO, NMKL)	500 g

Dehydrated Culture Media

08 Diarrhoeagenic *Escherichia coli*

Product Code	Product	Description	Qty.
MIMEB1836FA	Nutrient Broth (NB)	A general-purpose growth medium for bacteria.	500 g
MIMEB1826FA	Nutrient Agar (NA)	A general-purpose medium used for the growth of a wide variety of microorganisms. (AFNOR, AOAC, BSI, FDA, ISO, NMKL)	500 g
MIMEB1828FA	MacConkey Agar (MAC)	Used for selective and differential isolation of gram-negative bacilli. (BAM, COMPF, SMWW, USP)	500 g
MIMEB1853FA	Eosin-Methylene Blue Agar (EMB) (Levine Agar)	Used for isolation and differentiation of Enterobacteriaceae.	500 g

09 *Vibrio*

Product Code	Product	Description	Qty.
MIMEB1858FA	3% Sodium Chloride Alkaline Peptone Water	Used for enrichment of <i>Vibrio parahaemolyticus</i> .	500 g
MIMEB1859FA	Thiosulfate Citrate Bile Salts Sucrose (TCBS)	Used for selective isolation of enteropathogenic vibrios, especially for <i>Vibrio cholerae</i> and <i>Vibrio parahaemolyticus</i>	500 g

10 Other Application

Product Code	Product	Description	Qty.
MIMEB1856FA	Tryptic Soy Broth (TSB) (Soybean Casein Digest)	Used for the cultivation of a wide variety of nonfastidious microorganisms. (USP)	500 g

11 Large-Scale Products

Product Code	Product	Description	Qty.
MIMEB1842FA	Buffered Peptone Water	A pre-enrichment medium for use prior to selective enrichment for the isolation of <i>Salmonella</i> spp. from foods. (AFNOR, BSI, IDF, NMKL)	10 KG



Sample Preparation

Product collection



Better performance for certain results

GVS Filter Technologies is constantly looking for new ways to expand our product offering to meet your needs and ease your application challenges. Our product innovations are the result of understanding your applications and valuing the amazing contributions your work can make to the quality of all our lives.

Whether you are pursuing goals in life science, pharmaceutical methods, research and development, quality control, or specialty environmental applications, we commit to not only deliver a product that works, but to look beyond what simply works and deliver a product that truly makes a difference.

GVS Filter Technologies is one of the few companies to offer a variety of products made from the same materials of construction, allowing for single- or multiple-sample processing of your techniques. We bring together membranes with superior performance, outstanding housing materials, and devices designed to maximize processing accuracy and speed.



Filter Media Selection has never been easy!

1. Consider Chemical Compatibility

Chemical compatibility is defined as the ability of a filter material to resist select chemicals so that the pore structure is not adversely affected by chemical exposure, and the filter material does not shed particles or fibers to add extractables. The chemical compatibility information on page 5 will help you make the right choice. Temperature, time, concentration, applied pressure, and length of exposure also affect compatibility.

Extractable Materials

The membrane manufacturer best prevents contaminants that elute from the filter media. GVS Filter Technologies specifically selects the highest grade of materials and performs rigorous extraction methods on our membrane products to reduce the occurrence of undesired artifacts. Choosing membranes that are compatible with your fluids and experimental conditions will reduce or eliminate extractables.

Binding

Membranes may chemically interact with the sample through electrostatic, ionic, covalent, hydrogen bonding, or other interactions. Binding can be a desirable or undesirable characteristic depending on the requirements of the application.

2. Consider Effective Filtration Area (EFA)

The particulate contained within a fluid affects the life of a filter. As particles are removed from a filter, they block pores and reduce the useable portion of the filter. Fluids with particulate loads will plug a filter more quickly than "clean" fluids. Increasing the EFA can lengthen the life of a filter. The Sample Volume Selection Guide on page 6 outlines general guidelines for the most appropriate filter size for different volumes of liquid.

3. Choose the Right Pore Size

Pore size is best selected by considering the instrumentation used for analysis. UV/V spectrophotometers may only require 1 μm filtration; HPLC analysis may require 0.45 μm filtration; and UHPLC will require 0.2 μm filtration due to the size of the column packing, beads, and internal frits. The filter material's pore size is determined by the diameter of the smallest particle that is to be retained with a defined, high degree of efficiency. For standard liquid chromatography systems using columns with 5 μm or larger packings, the filtration industry standard is 0.45 μm for syringe filters and mobile phase membranes.

For columns with packings smaller than 5 μm , UHPLC, microbore columns, or when concerned about microbial growth, a 0.2 μm filter is recommended. To clarify samples or when processing difficult-to-filter solutions, 1 to 5 μm pore sizes or glass fiber filters are suggested. Prefilters generally precede smaller pore size final filters and allow the user to process larger fluid volumes before the filter plugs.

The GVS Life Sciences Sample Preparation Family



GVS Life Sciences offers a range of disposable syringe filter devices designed to provide fast and efficient filtration of aqueous and organic solutions. They are available in a wide variety of sizes and membranes, with a polypropylene or acrylic housing, for both sterile and non sterile laboratory applications.



Features and Benefits

- A Lower hold-up volume - due to an improved flow channel design and reduced spacing between the supports within the housing, for better handling of small sample volumes or costly samples
- A Increased operating pressure - up to 80 psi due to the over-mold that prevents sample leaking at the seam and keeps the filter unit from bursting in half
- A Strict quality control - syringe filters are integrity tested to ensure a proper fit and weld to eliminate any potential filter by pass
- A Accurate labeling - each filter is labeled with the specific filter material and pore size for easy identification even if the syringe filter is not in its original packaging
- A Multifunctional connectors - equipped with male luer-lock or male slip and female luer-lock connections
- A Polypropylene or Acrylic housing
- A Modified Acrylic housing to bidirectionally support the membrane allowing sample injection or aspiration
- A Sterile or Non-Sterile options
- A Bulk-packages or individual blisters
- A Customized product and packaging on request
- A Manufactured in the USA - GVS Life Sciences devices are manufactured in our ISO9001 certified plant in Sanford, Maine, USA, using proprietary microporous membranes from our plant in Westborough, Massachusetts, USA.

Products Selection Guide

HPLC Sample Preparation

A Sample	Organic or Aqueous	Protein-Based Aqueous	Acid or Base Sample Degas-ing	Aggressive acids and alcohols	Protein and Biological fluid	Organic sol-vents	
	< 230 nm Nylon	< 230 nm Polypropylene	<230 nm Polypropylene	PTFE	PVDF	PES	RC
A Detection Level / Filter Membrane							
Sample Volume							
	<1mL	< 20 mL		< 100 mL		<1000	
Filter Device	Separa		Abluo 13		Abluo 33		Extracto
	Abluo Supreme						

Pore Size

Filters come in a variety of pore sizes. The most common ones used in physical chemistry laboratories are 0.2 μm and 0.45 μm . Generally, 0.45 μm is sufficient for the majority of procedures. However, where smaller particles may be present in the sample 0.2 μm or 0.1 μm might be more appropriate. If you need to filter a smaller particle size (for example, to remove colloids) other types of filtration may be more appropriate

Pore Sizes				
0.1 μm	0.2 μm	0.45 μm	> 0.45 μm	
Sterilization	ICP-MS (trace metal analysis)	General analysis	Pre-filtration	

Tissue Culture Media

Sample Preparation
Products Selection Guide

A Sample Concerns		Presterilized Preparation Products	
		Lowest Protein Binding	Higher throughput, Quicker Flow Rate
A Filter Membrane		Cellulose Acetate	Polyethersulfone

Sample Volume Selection Guide

Volume	Product	Membrane Diameter	Filter	Housing	Pore Size (μm)	Sterile	Non Sterile
< 1 mL	Separa	N/A	Polytetrafluoroethylene	Polypropylene, PTFE and silicone septa	0,20, 0,45	No	Yes
			Regenerated Cellulose		0,20, 0,45	No	Yes
			Nylon 66		0,20, 0,45	No	Yes
			Polyvinylidene Fluoride		0,20, 0,45	No	Yes
			Polyethersulfone		0,20, 0,45	No	Yes
< 12 mL	Abluo 13	13 mm	Cellulose Acetate	Acrylic	0,22 0,45 0,8 1,2 5,0	Yes	Yes
< 50 mL	Abluo 33	25 mm	Nylon 66	Acrylic	0,22 0,45 5,0	No	Yes
< 100 mL	Abluo Supreme	25 mm	Mixed Cellulose Esters	Polypropylene	0,22 0,45	No	Yes
			Polyethersulfone	Polypropylene	0,22 0,45	Yes	Yes
			Polytetrafluoroethylene Hydrophilic	Polypropylene	0,22 0,45	No	Yes
			Polytetrafluoroethylene	Polypropylene	0,22 0,45	No	Yes
			Regenerated Cellulose	Polypropylene	0,22 0,45	No	Yes
			Polyvinylidene Fluoride	Polypropylene	0,22 0,45	Yes	Yes
			Glass Fiber	Polypropylene	0,7 1,0 1,2 3,1	No	Yes
< 150 mL	Extracto 150		Mixed Cellulose Esters	Polypropylene	0.1 0,22 0,45	Yes	No
< 250 mL	Extracto 250		Polyethersulfone	Polypropylene		Yes	No
< 500 mL	Extracto 500		Nylon 66	Polypropylene		Yes	No
< 1000 mL	Extracto 1000		Cellulose Acetate	Polypropylene		Yes	No
			Polyvinylidene Fluoride	Polypropylene		Yes	No
			Polyethersulfone High Flow	Polypropylene		Yes	No

Membrane Selection Guide

Cell and Particulate Analysis

Material	Code	Property	Features	Application
Cellulose Acetate	CA	Excellent flow rates. Very low protein binding, so they are suitable for protein recovery applications. Hydrophilic, so fine for aqueous and alcoholic media although they have limited solvent resistance. pH range ~4-8.	<ul style="list-style-type: none"> Lowest Binding Material Available Highest Throughput Strength and Dimension Stability Uniform Pore Structure Hydrophilic 	<ul style="list-style-type: none"> Tissue Culture Media Sterilization Protein and Enzyme Filtration, Sterilization Biological Fluid Filtration, Sterilization Uniform Pore Structure Hydrophilic
Glass Microfibre	GMF	Chemically inert and available in higher pore sizes than other membranes. Mechanically extremely strong and tolerant to organic solvents. Not idea with strong acids (particularly hydrofluoric acid) or bases. Ideal for high particulates solutions, often used as a pre-filter before a membrane filter. Not a membrane filter and so has a slightly less exact retention efficiency than membranes. Will contribute extractables that interfere with ionic and metals analysis.	<ul style="list-style-type: none"> Biologically Inert Available With or Without Acrylic Binders High Dirt-Holding Capacity 	<ul style="list-style-type: none"> Gravimetric Analysis Prefilter to Extend Final Filter Life Clarification of Particulate Laden Solutions
Nitrocellulose	NC	High mechanical strength, high flow rates, and low extractable levels. A good choice for trace element analysis applications. High protein binding. pH range ~4-8.	<ul style="list-style-type: none"> Consistent Flow Rates High Throughputs Uniform Pore Structure Hydrophilic 	<ul style="list-style-type: none"> Aqueous Filtration Microbiological Analysis Sterility Testing Gravimetric Analysis With Ashing Technique Particulate Analysis
Nylon	NY	Nylon membrane filters are hydrophilic, flexible, tear-resistant, and autoclavable. They are resistant to a range of organic solvents and suitable for use with high pH samples. Nylon binds proteins. Unsuitable for acidic solutions. pH range ~3-14.	<ul style="list-style-type: none"> Naturally Hydrophilic Wide Chemical Compatibility Range Extremely Low Extractables Strength and Dimensional Stability Chemically and Biologically Inert Wide Chemical Compatibility Range Extremely Low Extractables Low Fiber Release More Defined Pore Size and Greater Retention Efficiency Than Glass Prefilters 	<ul style="list-style-type: none"> Sterilization, Clarification of Aqueous and Organic Solvent Solutions HPLC Sample Preparation
Polypropylene	PP	Slightly hydrophobic, can be used with a very wide range of solvents including aggressive hard-to-filter solutions such as strongly acidic samples. High and uniform tolerance to heat and mechanical stress. pH range ~1-14.	<ul style="list-style-type: none"> Wide Chemical Compatibility Range Extremely Low Extractables Low Fiber Release More Defined Pore Size and Greater Retention Efficiency Than Glass Prefilters 	<ul style="list-style-type: none"> Sterilization, Clarification of Organic Solvent Solutions 0.1, 0.22, 0.45 27 HPLC Sample Preparation Prefilter to Extend Final Filter Life Final Filter for Noncritical Filtrations Prefiltering Solvents and Acids
Polyethersulfone	PES	Hydrophilic, stable in low pH, have low levels of extractables, and exhibit low protein binding, making them suitable for many aqueous and organic solvents. PES membranes allow higher liquid flow than PTFE. Temperature resistant. pH range ~3-14 (sometimes quoted as 1-14).	<ul style="list-style-type: none"> Low Protein Binding Low Extractables Autoclavable Wide Chemical Compatibility Range Strength and Dimensional Stability High Flow Rates Excellent Sample Recovery Controlled Pore Structures 	<ul style="list-style-type: none"> Tissue Culture Media Sterilization Protein and Enzyme Filtration, Sterilization Biological Fluid Filtration, Sterilization Purify and Concentrate Proteins, Enzymes, Nucleic Acids and Antibodies Desalt
Polytetrafluoroethylene (Teflon)	PTFE	Is perfect for the filtration of gaseous or organic solvent-based samples and highly corrosive substances. Hydrophobic so provides chemical resistance to aggressive media and excellent temperature stability allowing an extended sampling range. If used with aqueous samples, the membrane usually requires pre-wetting (normally by using a small amount of alcohol). Can also be used to prevent moisture passing through air vents. pH range ~1-14.	<ul style="list-style-type: none"> Naturally Hydrophobic Compatible with Strong Acids and aggressive Solvents Improved Durability and Handling Natural Hydrophobic Compatible with High Temperatures Chemically and Biologically Inert 	<ul style="list-style-type: none"> Filtration of Strong Acids and Aggressive Solvents Venting Applications Filtration of High Temperature Acids and Solvents
Polytetrafluoroethylene Hydrophilic (Teflon)	PTFE	PTFE provides device manufacturers with a consistent, temperature and chemical compatible barrier to microbes and particulate matter. The optimal combination of air flow and water entry pressure adds value to most device designs.	<ul style="list-style-type: none"> Naturally hydrophobic or hydrophilic Compatible with strong acids and aggressive solutions Improved durability and handling 	<ul style="list-style-type: none"> Filtration of strong acids and aggressive solutions Venting applications Phase separations Aerosol samplings
Rigenrated Cellulose	RC	Made from pure cellulose without wetting agents. Chemical resistance to a wide variety of solvents. High wet strength. Hydrophilic, so suitable for aqueous and organic samples. Very low protein binding capacity. pH range ~3-12.	<ul style="list-style-type: none"> Hydrophilic Excellent chemical compatibility and resistance to organic solvents Low non-specific adsorption Superior thermal resistance High mechanical strength 	<ul style="list-style-type: none"> Filtration of Aqueous and Organic Solutions Particle removal from organic solvents or mixtures of aqueous and non-aqueous samples Ultra-cleaning and de-gassing solvents and mobile phases for HPLC Clarification Protein Chemistry
Polyvinylidene Fluoride	PVDF	Designed for high tensile strength, high solvent resistance, and low protein binding, making them suitable for biomedical filtration, sterilization filtration, and HPLC sample preparation. pH range ~1-14.	<ul style="list-style-type: none"> Superior strength to withstand aggressive handling or use with automated equipment without breaking or tearing Low protein binding minimizes retention of proteins in solution Low extractables ensure tests will be clean with consistent results Lot-to-lot consistency ensures consistent flow and diffusion rates for dependable results every time 	<ul style="list-style-type: none"> Preparation of protein-containing solutions prior to chromatography or other instrument analyses. Useful for a wide range of applications, including aggressive and non-aggressive solvent-based mobile phase. Offers excellent chemical compatibility, even with aggressive acids and alcohols. Provides high flow rates and throughput, low extractables and broad chemical compatibility. Better protection of your analytical results.

Sample Preparation

Syringeless Filters - SEPARA®

Save time and money in sample preparation process with SEPARA® syringeless filters. The single step filtering process is efficient, simple to use, easy to press and fast.



sample filling



press down to filter
sample



filtered sample ready
for analysis

Features and Benefits

- A Rapid sample preparation
- A Single step process, filtering with a plunger in the vial
- A Sample ready to use after filtration
- A Pre-slitted cap ensures easy and clean sample transfer
- A Replace syringe, syringe filter, glass vial and cap, reducing waste
- A Increase sample integrity with all-in vial and filter
- A Compatible with most auto-samplers
- A Compatible with most multi-compressors

Characteristics

Dimensions: 12 mm diameter x 32 mm height

Materials: Polypropylene, PTFE and Silicone septa

Fill Line Volume: 480 microliter

Filtrating Capacity: 450 microliter

Dead Volume: 30 microliter

Compression Force: 8 psi (0.6 bar)

Maximum operating temperature: 120°F (50°C)



Ordering information

Membrane Material	Pore Size (µm)	Color	Product Code 100/pk
Polytetrafluoroethylene (PTFE)	0.20	Pink	MV32ANPPT002TC01
Polytetrafluoroethylene (PTFE)	0.45	Red	MV32ANPPT004CC01
Regenerated Cellulose (RC)	0.20	Gray	MV32ANPRC002GC01
Regenerated Cellulose (RC)	0.45	Black	MV32ANPRC004LC01
Nylon (NY)	0.20	Light Blue	MV32ANPNY002BC01
Nylon (NY)	0.45	Blue	MV32ANPNY004UC01
Polyvinylidene Fluoride (PVDF)	0.20	Yellow	MV32ANPPV002FC01
Polyvinylidene Fluoride (PVDF)	0.45	Orange	MV32ANPPV004IC01
Polyethersulfone (PES)	0.20	Light Green	MV32ANPPS002EC01
Polyethersulfone (PES)	0.45	Dark Green	MV32ANPPS004WC01

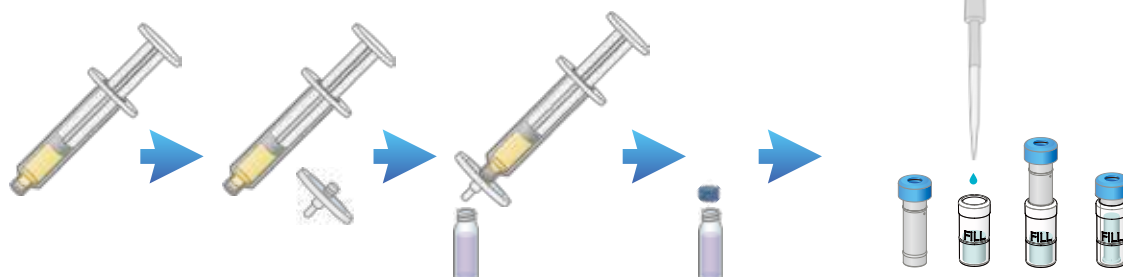


Description	Product Code 1/pk
Multi Vial Compressor	SEPARATOGGLER120

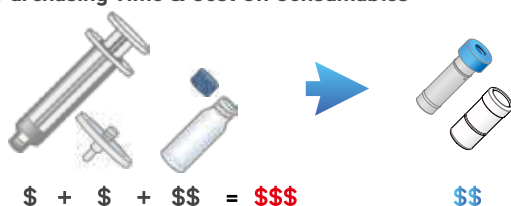
Sample Preparation

Separa Syringeless Filter: Advantages

Save HPLC Sample Preparation Time & Preserve Precious Sample
Reduce Cross Contamination & Increase User Safety



Save Purchasing Time & Cost On Consumables



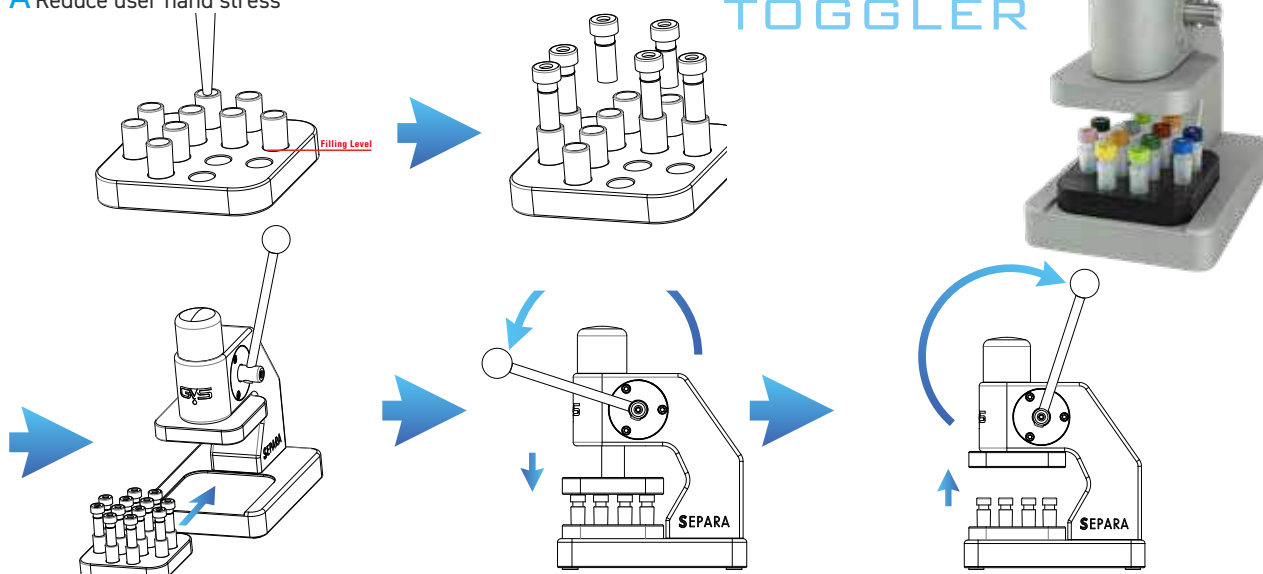
Easy to Dispose & Save Time On Waste Management



Separa Toggler: Multi Vial Compressor

- A Further shorten 30% sample preparation time
- A Multiple filtration of 12 SEPARA® syringeless filter vial samples at a time
- A Reduce user hand stress

SEPARA
TOGGLER



13 mm ABLUO® Syringe Filters



Characteristics

Membrane Materials: Cellulose Acetate, Nitrocellulose (MCE), Nylon 66, PES, PTFE, PVDF, Regenerated Cellulose

Membrane Diameter: 13 mm

Effective Filtration Area: 0.76 cm²

Housing Diameter: 18 mm

Housing Materials: Acrylic, Polypropylene, Ultrasonically welded

Inlet / Outlet: FLL / MLL-MLS

Holdup Volume: <50 microliter

Maximum Operating Temperature:

PP Abluo - 90°C / 194°F, Acrylic Abluo 50°C / 122°F

Maximum Operating Pressure: 80 psi

Sterile: No

Typical Applications

▲ Filtration of Aqueous, Organic and Alcohol Solutions

▲ Analytical Sample Preparation

▲ IC Chromatography

▲ Fuel Hydraulic Fluids and Machined Parts

▲ Clarification

▲ Protein Chemistry

▲ Cell Culture

Ordering information

Membrane Material	Pore Size (μ m)	End Fitting	Hosing Material	Color	Product Code	
					Packaging 100/ pk	Packaging 500/ pk
Cellulose Acetate (CA)	0.22	FLL/MLL	Acrylic	Blue	FJ13ANCCA002DH01	FJ13ANCCA002DD01
Cellulose Acetate (CA)	0.45	FLL/MLL	Acrylic	Yellow	FJ13ANCCA004FH01	FJ13ANCCA004FD01
Cellulose Acetate (CA)	0.80	FLL/MLL	Acrylic	Green	FJ13ANCCA008EH01	FJ13ANCCA008ED01
Cellulose Acetate (CA)	1.20	FLL/MLL	Acrylic	Red	FJ13ANCCA012CH01	FJ13ANCCA012CD01
Cellulose Acetate (CA)	5.00	FLL/MLL	Acrylic	Brown	FJ13ANCCA050PH01	FJ13ANCCA050PD01
Nylon 66 (NY)	0.22	FLL/MLS	Polypropylene	Transparent	FJ13BNPNY002AH01	FJ13BNPNY002AD01
Nylon 66 (NY)	0.45	FLL/MLS	Polypropylene	Transparent	FJ13BNPNY004AH01	FJ13BNPNY004AD01
Nylon 66 (NY)	5.9	FLL/MLL	Acrylic	Transparent	-	FJ13BNPNY050AD01
Polyethersulfone (PES)	0.22	FLL/MLS	Polypropylene	Transparent	FJ13BNPPS002AH01	FJ13BNPPS002AD01
Polyethersulfone (PES)	0.45	FLL/MLS	Polypropylene	Transparent	FJ13BNPPS004AH01	FJ13BNPPS004AD01
Mixed Cellulose Esters (MCE)	0.22	FLL/MLS	Polypropylene	Transparent	FJ13BNPNC002AH01	FJ13BNPNC002AD01
Mixed Cellulose Esters (MCE)	0.45	FLL/MLS	Polypropylene	Transparent	FJ13BNPNC004AH01	FJ13BNPNC004AD01
Regenerated Cellulose (RC)	0.22	FLL/MLS	Polypropylene	Transparent	FJ13BNPRC002AH01	FJ13BNPRC002AD01
Regenerated Cellulose (RC)	0.45	FLL/MLS	Polypropylene	Transparent	FJ13BNPRC004AH01	FJ13BNPRC004AD01
Polyvinylidene Fluoride (PVDF)	0.22	FLL/MLS	Polypropylene	Transparent	FJ13BNPPV002AH01	FJ13BNPPV002AD01
Polyvinylidene Fluoride (PVDF)	0.45	FLL/MLS	Polypropylene	Transparent	FJ13BNPPV004AH01	FJ13BNPPV004AD01
Polytetrafluoroethylene (PTFE)	0.22	FLL/MLS	Polypropylene	Transparent	FJ13BNPPT002AH01	FJ13BNPPT002AD01
Polytetrafluoroethylene (PTFE)	0.45	FLL/MLS	Polypropylene	Transparent	FJ13BNPPT004AH01	FJ13BNPPT004AD01
Polytetrafluoroethylene Hydrophilic (PTFE HP)	0.22	FLL/MLS	Polypropylene	Transparent	FJ13BNPPH002AH01	FJ13BNPPH002AD01
Polytetrafluoroethylene Hydrophilic (PTFE HP)	0.45	FLL/MLS	Polypropylene	Transparent	FJ13BNPPH004AH01	FJ13BNPPH004AD01

25 mm ABLUO® Syringe Filters



Characteristics

Membrane Materials: Cellulose Acetate, Glass Fiber, Nitrocellulose, Nylon 66, PES, Polyethylene, PTFE, PVDF, Regenerated Cellulose

Housing Diameter: 33 mm

Membrane Diameter: 25 mm

Effective Filtration Area: 4.6 cm²

Housing Materials: Acrylic, Polypropylene Ultrasonically welded

Inlet / Outlet: FLL / MLL-MLS

Holdup Volume: <100 microliter

Maximum Operating Temperature:

PP Abluo - 90°C / 194°F, Acrylic Abluo 50°C / 122°F

Maximum Operating Pressure: 80 psi

Sterile: No

Typical Applications

- A Analytical sample preparation
- A Biological fluids
- A Buffer solutions
- A Sterile filtering of tissue culture media
- A Protein aqueous solutions

- A Biofuel analysis
- A HPLC sample preparation
- A Pesticide testing
- A Cannabis potency testing
- A Neutraceutical sample preparation

Ordering information

Membrane Material	Pore Size (µm)	End Fitting	Housing Material	Color	Product Code	
					Packaging 100/pk	Packaging 500/pk
Cellulose Acetate (CA)	0.22	FLL/MLL	Acrylic	Blue	FJ25ANCCA002DH01	FJ25ANCCA002DD01
Cellulose Acetate (CA)	0.45	FLL/MLL	Acrylic	Yellow	FJ25ANCCA004FH01	FJ25ANCCA004FD01
Cellulose Acetate (CA)	0.80	FLL/MLL	Acrylic	Green	FJ25ANCCA008EH01	FJ25ANCCA008ED01
Cellulose Acetate (CA)	1.20	FLL/MLL	Acrylic	Red	FJ25ANCCA012CH01	FJ25ANCCA012CD01
Cellulose Acetate (CA)	5.00	FLL/MLL	Acrylic	Brown	FJ25ANCCA050PH01	FJ25ANCCA050PD01
Nylon 66 (NY)	0.22	FLL/MLS	Polypropylene	Transparent	FJ25BNPNY002AH01	FJ25BNPNY002AD01
Nylon 66 (NY)	0.45	FLL/MLS	Polypropylene	Transparent	FJ25BNPNY004AH01	FJ25BNPNY004AD01
Polyethersulfone (PES)	0.22	FLL/MLS	Polypropylene	Transparent	FJ25BNPPS002AH01	FJ25BNPPS002AD01
Polyethersulfone (PES)	0.45	FLL/MLS	Polypropylene	Transparent	FJ25BNPPS004AH01	FJ25BNPPS004AD01
Mixed Cellulose Esters (MCE)	0.22	FLL/MLS	Polypropylene	Transparent	FJ25BNPNC002AH01	FJ25BNPNC002AD01
Mixed Cellulose Esters (MCE)	0.45	FLL/MLS	Polypropylene	Transparent	FJ25BNPNC004AH01	FJ25BNPNC004AD01
Regenerated Cellulose (RC)	0.22	FLL/MLS	Polypropylene	Transparent	FJ25BNPRC002AH01	FJ25BNPRC002AD01
Regenerated Cellulose (RC)	0.45	FLL/MLS	Polypropylene	Transparent	FJ25BNPRC004AH01	FJ25BNPRC004AD01
Polyvinylidene Fluoride (PVDF)	0.22	FLL/MLS	Polypropylene	Transparent	FJ25BNPPV002AH01	FJ25BNPPV002AD01
Polyvinylidene Fluoride (PVDF)	0.45	FLL/MLS	Polypropylene	Transparent	FJ25BNPPV004AH01	FJ25BNPPV004AD01
Polytetrafluoroethylene (PTFE)	0.22	FLL/MLS	Polypropylene	Transparent	FJ25BNPPT002AH01	FJ25BNPPT002AD01
Polytetrafluoroethylene (PTFE)	0.45	FLL/MLS	Polypropylene	Transparent	FJ25BNPPT004AH01	FJ25BNPPT004AD01
Polytetrafluoroethylene Hydrophilic (PTFE HP)	0.22	FLL/MLS	Polypropylene	Transparent	FJ25BNPPH002AH01	FJ25BNPPH002AD01
Polytetrafluoroethylene Hydrophilic (PTFE HP)	0.45	FLL/MLS	Polypropylene	Transparent	FJ25BNPPH004AH01	FJ25BNPPH004AD01
Glass Fiber (GF)	0.70	FLL/MLS	Polypropylene	Transparent	FJ25BNPGF007AH01	FJ25BNPGF007AD01
Glass Fiber (GF)	1.00	FLL/MLS	Polypropylene	Transparent	FJ25BNPGF010AH01	FJ25BNPGF010AD01
Glass Fiber (GF)	1.20	FLL/MLS	Polypropylene	Transparent	FJ25BNPGF012AH01	FJ25BNPGF012AD01
Glass Fiber (GF)	3.10	FLL/MLS	Polypropylene	Transparent	FJ25BNPGF031AH01	FJ25BNPGF031AD01
85 Cellulose Acetate (CA)	0.22	FLL/MLS	Polypropylene	Transparent	-	FJ25BNPCA002AC17
Cellulose Acetate (CA)	0.45	FLL/MLS	Polypropylene	Transparent	-	FJ25BNPCA004AD01

13 mm STERILE ABLUO® Syringe Filters



Characteristics

Membrane Materials: Cellulose Acetate, PES, PVDF

Housing Diameter: 18 mm

Membrane Diameter: 13 mm

Effective Filtration Area: 0.76 cm²

Housing Material: Acrylic Ultrasonically welded

Inlet / Outlet: FLL / MLL-MLS








Holdup Volume: <50 microliter

Maximum Operating Temperature: 50°C / 122°F

Maximum Operating Pressure: 80 psi

Sterile: Yes

Typical Applications

-  Filtration of Aqueous Solutions
-  Analytical Sample Preparation
-  IC Chromatography
-  Sterile Filtration and Clarification
-  Protein Chemistry
-  Cell Culture
-  Clarification

Ordering information

Membrane Material	Pore Size (μm)	End Fitting	Housing Material	Color	Product Code
					Packaging 50/pk
Cellulose Acetate (CA)	0.22	FLL/MLL	Acrylic	Blue	FJ13ASCCA002DL01
Cellulose Acetate (CA)	0.45	FLL/MLL	Acrylic	Yellow	FJ13ASCCA004FL01
Cellulose Acetate (CA)	0.80	FLL/MLL	Acrylic	Green	FJ13ASCCA008EL01
Cellulose Acetate (CA)	1.20	FLL/MLL	Acrylic	Red	FJ13ASCCA012CL01
Cellulose Acetate (CA)	5.00	FLL/MLL	Acrylic	Brown	FJ13ASCCA050PL01
Polyethersulfone (PES)	0.22	FLL/MLS	Acrylic	Transparent	FJ13BSCPS002AL01
Polyethersulfone (PES)	0.45	FLL/MLS	Acrylic	Transparent	FJ13BSCPS004AL01
Polyvinylidene Fluoride (PVDF)	0.22	FLL/MLS	Acrylic	Transparent	FJ13BSCPV002AL01
Polyvinylidene Fluoride (PVDF)	0.45	FLL/MLS	Acrylic	Transparent	FJ13BSCPV004AL01

25 mm STERILE ABLUO® Syringe Filters



Characteristics

Membrane Materials: Cellulose Acetate, Nylon 66, PES, PVDF

Housing Diameter: 33 mm

Membrane Diameter: 25 mm

Housing Material: Acrylic Ultrasonically welded

Effective Filtration Area: 4.6 cm²

Inlet / Outlet: FLL / MLL-MLS

Holdup Volume: <100 microliter

Maximum Operating Temperature: 50°C / 122°F

Maximum Operating Pressure: 80 psi

Sterile: Yes

Typical Applications

▲ Filtration of Aqueous and Alcohol Solutions

▲ Sterile Filtration and Clarification

▲ Cell Culture

▲ Analytical Sample Preparation

▲ IC Chromatography

▲ Clarification

▲ Protein Chemistry

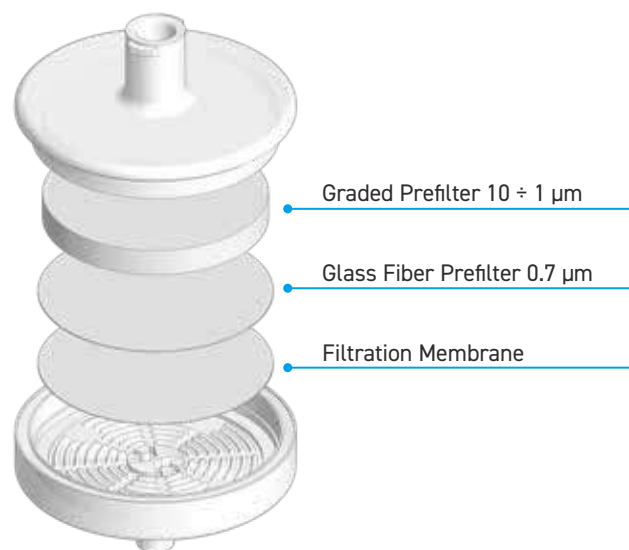
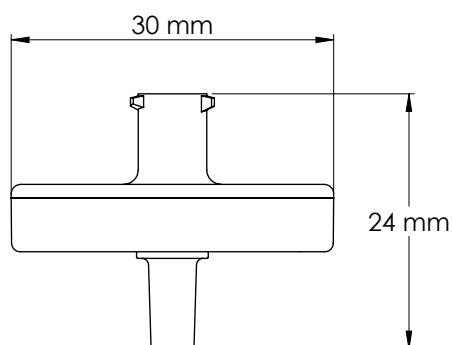
▲ Filtration of Aqueous and Organic Solutions

Ordering information

Membrane Material	Pore Size (µm)	End Fitting	Housing Material	Color	Product Code
					Packaging 50/pk
Cellulose Acetate (CA)	0.22	FLL/MLS	Acrylic	Transparent	FJ25BSCCA002AL01
Cellulose Acetate (CA)	0.45	FLL/MLS	Acrylic	Transparent	FJ25BSCCA004AL01
Cellulose Acetate (CA)	0.80	FLL/MLS	Acrylic	Transparent	FJ25BSCCA008AL01
Cellulose Acetate (CA)	0.22	FLL/MLL	Acrylic	Blue	FJ25ASCCA002DL01
Cellulose Acetate (CA)	0.45	FLL/MLL	Acrylic	Yellow	FJ25ASCCA004FL01
Cellulose Acetate (CA)	0.80	FLL/MLL	Acrylic	Green	FJ25ASCCA008EL01
Cellulose Acetate (CA)	1.20	FLL/MLL	Acrylic	Red	FJ25ASCCA012CL01
Cellulose Acetate (CA)	5.00	FLL/MLL	Acrylic	Brown	FJ25ASCCA050PL01
Mixed Cellulose Esters (MCE)	0.22	FLL/MLS	Acrylic	Transparent	FJ25BSCNC002AL01
Mixed Cellulose Esters (MCE)	0.45	FLL/MLS	Acrylic	Transparent	FJ25BSCNC004AL01
Nylon 66 (NY)	0.10	FLL/MLS	Acrylic	Transparent	FJ25BSCNY001AL01
Nylon 66 (NY)	0.22	FLL/MLS	Acrylic	Transparent	FJ25BSCNY002AL01
Nylon 66 (NY)	0.45	FLL/MLS	Acrylic	Transparent	FJ25BSCNY004AL01
Nylon 66 (NY)	1.20	FLL/MLS	Acrylic	Transparent	FJ25BSCNY012AL01
Nylon 66 (NY)	5.00	FLL/MLS	Acrylic	Transparent	FJ25BSCNY050AL01
Polyethersulfone (PES)	0.80	FLL/MLS	Acrylic	Transparent	FJ25BSCPS008AL01
Polyethersulfone (PES)	0.22	FLL/MLS	Acrylic	Transparent	FJ25BSCPS002AL01
Polyethersulfone (PES)	0.45	FLL/MLS	Acrylic	Transparent	FJ25BSCPS004AL01
Polyvinylidene Fluoride (PVDF)	0.22	FLL/MLS	Acrylic	Transparent	FJ25BSCPV002AL01
Polyvinylidene Fluoride (PVDF)	0.45	FLL/MLS	Acrylic	Transparent	FJ25BSCPV004AL01

ABLUO Supreme

ABLUO
SUPREME



Characteristics

Membrane Diameter: 25 mm

Effective Filtration Area: 4.63 cm²

Housing Diameter: 30 mm

Housing Materials: Clear Polypropylene

Maximum Operating Temperature: 90°C / 194°F

Maximum Operating Pressure: 75 psi

Shelf Life (normal conditions): 3 years

Ordering information

Membrane	Pore Size(µm)	Description	Product Code
NY	0.2	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - NY 0.2 µm	GF25BNPGN002AD01
NY	0.45	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - NY 0.45 µm	GF25BNPGN004AD01
PES	0.2	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - PES 0.2 µm	GF25BNPGS002AD01
PES	0.45	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - PES 0.45 µm	GF25BNPGS004AD01
PTFE	0.2	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - PTFE 0.2 µm	GF25BNPGT002AD01
PTFE	0.45	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - PTFE 0.45 µm	GF25BNPGT004AD01
PTFE (Hydrophilic)	0.2	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - PTFE Hydrophilic 0.2 µm	GF25BNPGH002AD01
PTFE (Hydrophilic)	0.45	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - PTFE Hydrophilic 0.45 µm	GF25BNPGH004AD01
PVDF	0.2	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - PVDF 0.2 µm	GF25BNPGV002AD01
PVDF	0.45	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - PVDF 0.45 µm	GF25BNPGV004AD01
CA	0.2	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - CA 0.2 µm	GF25BNPGA002AD01
CA	0.45	ABLUO SUPREME Syringe Filter 25 mm, FLL/MLS - CA 0.45 µm	GF25BNPGA004AD01
RC	0.2	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - PP GF/F/RC 0.7/0.22UM CLR 10/PK	GF25BNPGR002AT01
RC	0.2	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - PP GF/F/RC 0.7/0.22UM CLR 50/PK	GF25BNPGR002AL01
RC	0.22	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - PP GF/F/RC 0.7/0.22UM CLR 500/PK	GF25BNPGR002AD01
RC	0.45	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - PP GF/F/RC 0.7/0.45UM CLR 10/PK	GF25BNPGR004AT01
RC	0.45	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - PP GF/F/RC 0.7/0.45UM CLR 50/PK	GF25BNPGR004AL01
RC	0.45	ABLUO SUPREME Syringe Filter 25mm, FLL/MLS - PP GF/F/RC 0.7/0.45UM CLR 500/PK	GF25BNPGR004AD01

GVS Supreme Syringe Filter with Straw for ICP-MS Auto Sampler Integration



The GVS Supreme syringe filter with an integrated straw is specifically designed for ICP-MS (Inductively Coupled Plasma Mass Spectrometry) instruments. This multi-layer filter ensures effective sample preparation by removing particulates before they reach the ICP-MS, enhancing accuracy in elemental analysis. It offers superior filtration efficiency, high sample recovery, and is compatible with a variety of sample types including environmental, biological, and industrial samples.

Applications

- A Environmental Monitoring: Routine environmental testing and soil analysis.
- A Food and Beverage: Wine and drinking water analysis, and pesticide screening.
- A Pharmaceutical and Biomedical Research: Pharmaceutical safety and trace metal analysis.
- A Mining and Metals: Analysis of minerals like titanium dioxide and silicon dioxide.
- A Geochemistry: Geochemical analysis and isotope mapping in rock samples.
- A Clinical Research: Measuring trace elements in biological samples (e.g., iodine, copper, selenium).
- A Semiconductor Manufacturing: Process and quality control in semiconductor production.
- A Forensics: Analysis of glass and paint samples.

Why Choose GVS Supreme Syringe Filter with Straw?

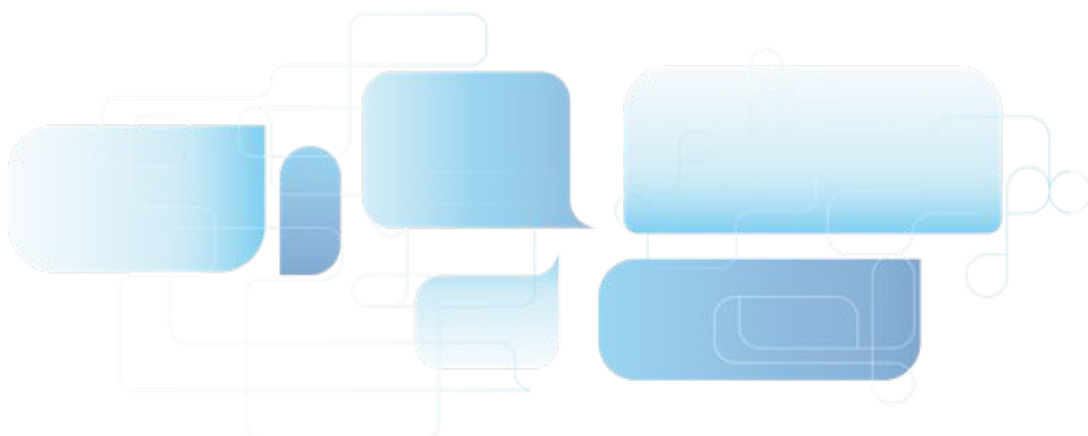
- A Superior Filtration: Multi-layer design enhances filtration efficiency, reducing contamination risks.
- A Minimized Waste: The integrated straw reaches the bottom of sample containers, maximizing sample recovery.
- A Instrument Protection: Prevents particulates from reaching the ICP-MS, protecting costly equipment.
- A Seamless Integration: Designed to work seamlessly with auto samplers, ensuring a streamlined workflow.

Straw Features

Length of the Tube is 10cm

Materials: ABS, DEHP-Free PVC

Connection type: Luer lock



Laboratory Syringes

Precision and Control for Accurate Lab Work

Reliable Syringes for Exact Liquid Handling



Key Features

- Accurate Volume Control:** Available in various sizes: 1ml, 2ml, 3ml, 5ml, 10ml, 20ml, 30ml, 50ml, 60ml, ensuring precise liquid measurement.
- Smooth Plunger Action:** High transparent PP material for tube and plunger. Designed for easy operation and smooth plunger movement, ensuring accurate fluid transfer with minimal force.
- Durable Materials:** Manufactured with high-quality materials that resist chemical degradation, making them compatible with various solutions.
- Leak-Proof Fit:** Available with luer lock or luer slip fittings to ensure secure connections, preventing leaks during liquid handling.
- Sterile & Non-Sterile Options:** Choose between sterile syringes for critical applications or non-sterile options for general laboratory use.
- Sterilization method:** Ethylene oxide

Our laboratory syringes are engineered for precision and control, offering reliable performance across a wide range of scientific applications. Whether you're measuring, transferring, or dispensing liquids, our syringes provide the accuracy and dependability required for your laboratory tasks.

Parts: Barrel+Piston+Plunger; Latex-free, PVC-free
High transparent PP material for tube and plunger

Applications

Sample Collection & Dispensing

Ideal for precise liquid handling, ensuring accurate measurements and clean transfers for analysis.

Titration & Dosing

Provides fine control over liquid flow, making it perfect for accurate titration and dosing in laboratory experiments.

Chemical Handling

Excellent for handling corrosive chemicals and organic solvents due to the high compatibility of materials.

Cell Culture and Biological Applications

Use sterile syringes to safely handle and dispense cell cultures, reagents, or biological fluids.

Why Choose Our Syringes?

- Unmatched Precision:** Designed for accuracy and ease of use in every laboratory setting.
- Wide Compatibility:** Suitable for a variety of solutions, including acids, bases, and solvents.
- Safety and Reliability:** Built to meet the highest industry standards, ensuring consistent performance.

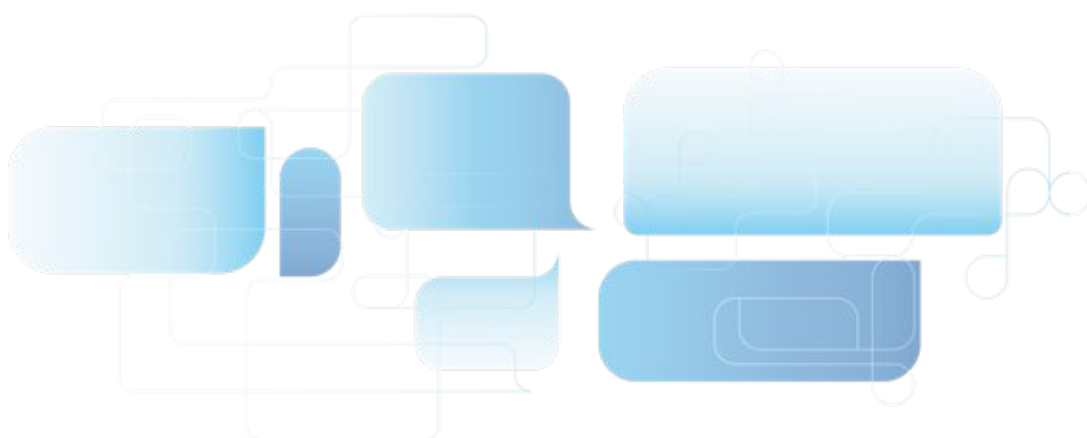
Ordering information

Product Code	Description	PS/BOX
SYRITG001LBP050A	Disposal Plastic Syringe, 1ml, Luer lock, No Sterile, Bulk Pack	10000
SYRITG001LSP050A	Disposal Plastic Syringe, 1ml, Luer lock, Sterile, Bulk+Inner bag Pack	10000
SYRITG001LSB100A	Disposal Plastic Syringe, 1ml, Luer lock, Sterile, Individually Wrapped+inner box Pack	3200
SYRITG001SBP050A	Disposal Plastic Syringe, 1ml, Luer slip, No Sterile, Bulk Pack	10000
SYRITG001SSP050A	Disposal Plastic Syringe, 1ml, Luer slip, Sterile, Bulk+Inner bag Pack	10000
SYRITG001SSB100A	Disposal Plastic Syringe, 1ml, Luer slip, Sterile, Individually Wrapped+inner box Pack	3200
SYRITG002LBP050A	Disposal Plastic Syringe, 2ml, Luer lock, No Sterile, Bulk Pack	5000
SYRITG002LSP050A	Disposal Plastic Syringe, 2ml, Luer lock, Sterile, Bulk+Inner bag Pack	5000
SYRITG002LSB100A	Disposal Plastic Syringe, 2ml, Luer lock, Sterile, Individually Wrapped+inner box Pack	3000
SYRITG002SBP050A	Disposal Plastic Syringe, 2ml, Luer slip, No Sterile, Bulk Pack	5000
SYRITG002SSP050A	Disposal Plastic Syringe, 2ml, Luer slip, Sterile, Bulk+Inner bag Pack	5000

Sample Preparation



Product Code	Description	PS/BOX
SYRITG002SSB100A	Disposal Plastic Syringe,2ml,Luer slip, Sterile,Individually Wrapped+innber box Pack	3000
SYRITG003LBP050A	Disposal Plastic Syringe,3ml,Luer lock, No Sterile,Bulk Pack	5000
SYRITG003LSP050A	Disposal Plastic Syringe,3ml,Luer lock, Sterile,Bulk+Inner bag Pack	5000
SYRITG003LSB100A	Disposal Plastic Syringe,3ml,Luer lock, Sterile,Individually Wrapped+innber box Pack	3000
SYRITG003SBP050A	Disposal Plastic Syringe,3ml,Luer slip, No Sterile,Bulk Pack	5000
SYRITG003SSP050A	Disposal Plastic Syringe,3ml,Luer slip, Sterile,Bulk+Inner bag Pack	5000
SYRITG003SSB100A	Disposal Plastic Syringe,3ml,Luer slip, Sterile,Individually Wrapped+innber box Pack	3000
SYRITG005LBP050A	Disposal Plastic Syringe,5ml,Luer lock, No Sterile,Bulk Pack	4000
SYRITG005LSP050A	Disposal Plastic Syringe,5ml,Luer lock, Sterile,Bulk+Inner bag Pack	4000
SYRITG005LSB100A	Disposal Plastic Syringe,5ml,Luer lock, Sterile,Individually Wrapped+innber box Pack	2400
SYRITG005SBP050A	Disposal Plastic Syringe,5ml,Luer slip, No Sterile,Bulk Pack	4000
SYRITG005SSP050A	Disposal Plastic Syringe,5ml,Luer slip, Sterile,Bulk+Inner bag Pack	4000
SYRITG005SSB100A	Disposal Plastic Syringe,5ml,Luer slip, Sterile,Individually Wrapped+innber box Pack	2400
SYRITG010LBP050A	Disposal Plastic Syringe,10ml,Luer lock, No Sterile,Bulk Pack	2500
SYRITG010LSP050A	Disposal Plastic Syringe,10ml,Luer lock, Sterile,Bulk+Inner bag Pack	2500
SYRITG010LSB100A	Disposal Plastic Syringe,10ml,Luer lock, Sterile,Individually Wrapped+innber box Pack	1600
SYRITG010SBP050A	Disposal Plastic Syringe,10ml,Luer slip, No Sterile,Bulk Pack	2500
SYRITG010SSP050A	Disposal Plastic Syringe,10ml,Luer slip, Sterile,Bulk+Inner bag Pack	2500
SYRITG010SSB100A	Disposal Plastic Syringe,10ml,Luer slip, Sterile,Individually Wrapped+innber box Pack	1600
SYRITG020LBP050A	Disposal Plastic Syringe,20ml,Luer lock, No Sterile,Bulk Pack	1200
SYRITG020LSP050A	Disposal Plastic Syringe,20ml,Luer lock, Sterile,Bulk+Inner bag Pack	1200
SYRITG020LSB100A	Disposal Plastic Syringe,20ml,Luer lock, Sterile,Individually Wrapped+innber box Pack	800
SYRITG020SBP050A	Disposal Plastic Syringe,20ml,Luer slip, No Sterile,Bulk Pack	1200
SYRITG020SSP050A	Disposal Plastic Syringe,20ml,Luer slip, Sterile,Bulk+Inner bag Pack	1200
SYRITG020SSB100A	Disposal Plastic Syringe,20ml,Luer slip, Sterile,Individually Wrapped+innber box Pack	800
SYRITG050LBP050A	Disposal Plastic Syringe,50ml,Luer lock, No Sterile,Bulk Pack	500
SYRITG050LSP050A	Disposal Plastic Syringe,50ml,Luer lock, Sterile,Bulk+Inner bag Pack	500
SYRITG050LSB025A	Disposal Plastic Syringe,50ml,Luer lock, Sterile,Individually Wrapped+innber box Pack	400
SYRITG050SBP050A	Disposal Plastic Syringe,50ml,Luer slip, No Sterile,Bulk Pack	500
SYRITG050SSP050A	Disposal Plastic Syringe,50ml,Luer slip, Sterile,Bulk+Inner bag Pack	500
SYRITG050SSB025A	Disposal Plastic Syringe,50ml,Luer slip, Sterile,Individually Wrapped+innber box Pack	400



Vacuum Filtration

EXTRACTO



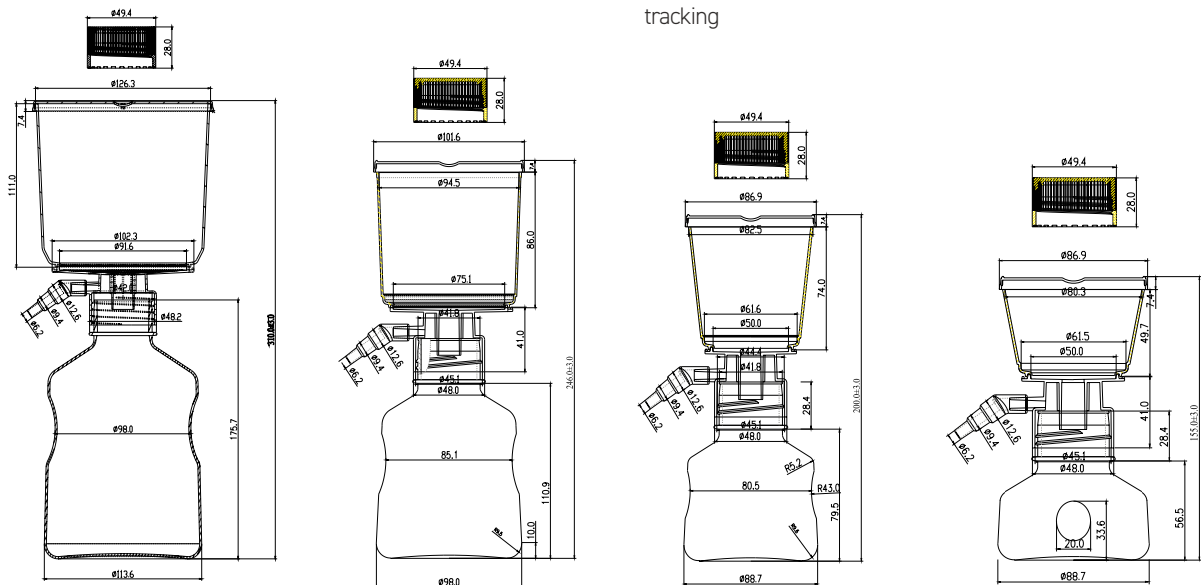
GVS Vacuum Filters are very useful in large volume samples separation and purification.

Characteristics

- Available with 5 membrane sorts of PVDF, PES, MCE, Nylon and CA
- 3 membrane pore sizes of 0.10 μ m, 0.22 μ m and 0.45 μ m
- 4 volumes size of 150, 250, 500 and 1000 ml
- Light weight and heavy wall construction
- Large knurls on the reservoir bottle cap for easy screw
- Designed wide and easy access bottle mouth for efficiently and stably pour out
- Engraved graduation ensure veracity
- Ergonomically designed sidewalls and collar can simplify tightening /loosening and adjustments
- Designed hose connector can fit multiplicate hose diameters
- Non-pyrogenic
- Gamma irradiation sterilized

Features

- Vacuum packaged in easy tear-to-open plastic bag and receiver bottle cap is individually wrapped
- Each individual unit is lot-numbered for easy identification and tracking



Housing Material	Capacity (ml)	Full Unit Overall Height (mm)	Filter Diameter (mm)	Working Volume (mm)	Hold-up Volume (ml)	Linker and Cap Material	Fitting Outlet (mm)	Maximum Operating Temperature (°C)
ABS	150	156	50	150	3	PP	45	45
ABS	250	200	50	250	3	PP	45	45
ABS	500	500	75	500	3	PP	45	45
ABS	1000	1000	91	1000	3	PP	45	45

Sample Preparation

Disposable Filtration Products

GVS Laboratory Filtration Products series, including syringe filters and Vacuum Filters, are designed specifically for the filtration of culture media and organic solvents in research and industrial laboratories. They are purpose-built with features designed to bring the highest levels of performance and purity to your research. A variety of membrane types and membrane areas are for choice that offer the wide applicability range for separation and purification of most liquid samples to meet different laboratory needs. The filtration products should be driven by syringes or vacuum pumps. All the products are manufactured with high quality material [Acrylonitrile butadiene styrene (ABS), Polypropylene (PP) or Polystyrene (GPPS)] and by proven technique, which assure them work under pressure and still hold integrity.

Tips on choosing membrane MCE (Mixed Cellulose Ester)

By the mixture of nitrocellulose and cellulose acetate, hydrophilic, chemical compatibility, low protein adsorption. The use temperature can not be higher than 40°C, the optimum

Ordering information

Membrane Material	Pore Size (µm)	Capacity (ml)	Membrane Diameter (mm)	Qty	Cat No.
MCE	0,22	150	Ø50	12/Pk	EXVF0150BNC02AZS
	0,22	250	Ø50	12/Pk	EXVF0250BNC02AZS
	0,22	500	Ø75	12/Pk	EXVF0500BNC02BZS
	0,22	1000	Ø91	12/Pk	EXVF1000BNC02CZS
	0,45	150	Ø50	12/Pk	EXVF0150BNC04AZS
	0,45	250	Ø50	12/Pk	EXVF0250BNC04AZS
	0,45	500	Ø75	12/Pk	EXVF0500BNC04BZS
	0,45	1000	Ø91	12/Pk	EXVF1000BNC04CZS
PES	0,1	150	Ø50	12/Pk	EXVF0150BPS01AZS
	0,1	250	Ø50	12/Pk	EXVF0250BPS01AZS
	0,1	500	Ø75	12/Pk	EXVF0500BPS01BZS
	0,1	1000	Ø91	12/Pk	EXVF1000BPS01CZS
	0,22	150	Ø50	12/Pk	EXVF0150BPS02AZS
	0,22	250	Ø50	12/Pk	EXVF0250BPS02AZS
	0,22	250	Ø75	12/Pk	EXVF0250BPS02BZS
	0,22	500	Ø75	12/Pk	EXVF0500BPS02BZS
	0,22	1000	Ø91	12/Pk	EXVF1000BPS02CZS
	0,45	150	Ø50	12/Pk	EXVF0150BPS04AZS
	0,45	250	Ø50	12/Pk	EXVF0250BPS04AZS
	0,45	250	Ø75	12/Pk	EXVF0250BPS04BZS
	0,45	500	Ø75	12/Pk	EXVF0500BPS04BZS
	0,45	1000	Ø91	12/Pk	EXVF1000BPS04CZS
	0,1	150	Ø50	12/PK	EXVF0150BPV01AZS
	0,1	250	Ø50	12/PK	EXVF0250BPV01AZS
	0,1	500	Ø75	12/PK	EXVF0500BPV01BZS
	0,1	1000	Ø91	12/PK	EXVF1000BPV01CZS
PVDF	0,22	150	Ø50	12/PK	EXVF0150BPV02AZS
	0,22	250	Ø50	12/PK	EXVF0250BPV02AZS
	0,22	500	Ø75	12/PK	EXVF0500BPV02BZS
	0,22	1000	Ø91	12/PK	EXVF1000BPV02CZS
	0,45	150	Ø50	12/PK	EXVF0150BPV04AZS
	0,45	250	Ø50	12/PK	EXVF0250BPV04AZS
	0,45	500	Ø75	12/PK	EXVF0500BPV04BZS
	0,45	1000	Ø91	12/PK	EXVF1000BPV04CZS
	0,45	150	Ø50	12/PK	EXVF0150BPV04AZS
	0,45	250	Ø50	12/PK	EXVF0250BPV04AZS

pH range is 3-6. Particle analysis, particle removal, biochemical analysis, HPLC sample preparation for general media and aqueous solutions.

Can not be used to filter ethanol and alkaline solution.

NY (Nylon)

Providing a broad range of chemical compatibility of the filtration of either aqueous or organic solvents, hydrophilic, can be used in a broad pH range.

PVDF (Polyvinylidene fluoride)

Extremely low protein-binding, for filtration of non-aggressive aqueous and mild organic solutions, or where maximizing protein recovery is important.

PES (Polyethersulfone)

Low-affinity for proteins and extractable with substantially faster flow rates than PVDF; suitable for pre-filtration and filtration of buffers and culture media.

CA (Cellulose Acetate)

Lowest binding material available. Hydrophilic and high throughput. Strength and dimension stability. Uniform pore structure.

Membrane Material	Pore Size (µm)	Capacity (ml)	Membrane Diameter (mm)	Qty	Cat No.
Nylon	0,22	150	Ø50	12/PK	EXVF0150BNY02AZS
	0,22	250	Ø50	12/PK	EXVF0250BNY02AZS
	0,22	500	Ø75	12/PK	EXVF0500BNY02BZS
	0,22	1000	Ø91	12/PK	EXVF1000BNY02CZS
	0,45	150	Ø50	12/PK	EXVF0150BNY04AZS
	0,45	250	Ø50	12/PK	EXVF0250BNY04AZS
	0,45	500	Ø75	12/PK	EXVF0500BNY04BZS
	0,45	1000	Ø91	12/PK	EXVF1000BNY04CZS
CA	0,22	150	Ø50	12/PK	EXVF0150BCA02AZS
	0,22	250	Ø50	12/PK	EXVF0250BCA02AZS
	0,22	500	Ø75	12/PK	EXVF0500BCA02BZS
	0,22	1000	Ø91	12/PK	EXVF1000BCA02CZS
	0,45	150	Ø50	12/PK	EXVF0150BCA04AZS
	0,45	250	Ø50	12/PK	EXVF0250BCA04AZS
	0,45	500	Ø75	12/PK	EXVF0500BCA04BZS
	0,45	1000	Ø91	12/PK	EXVF1000BCA04CZS
	0,22	150	Ø50	12/PK	EXVF0150BPX02AZS
	0,22	250	Ø50	12/PK	EXVF0250BPX02AZS
PES Hi-Flo	0,22	500	Ø75	12/PK	EXVF0500BPX02BZS
	0,22	1000	Ø91	12/PK	EXVF1000BPX02CZS
	0,45	150	Ø50	12/PK	EXVF0150BPX04AZS
	0,45	250	Ø50	12/PK	EXVF0250BPX04AZS
	0,45	500	Ø75	12/PK	EXVF0500BPX04BZS
	0,45	1000	Ø91	12/PK	EXVF1000BPX04CZS
	0,45	150	Ø50	12/PK	EXVF0150BPX04AZS
	0,45	250	Ø50	12/PK	EXVF0250BPX04AZS

Sample Preparation

Bottle Top Filter



GVS Bottle Top Filters are very useful in research laboratories for sterilization or laboratory fluid clarification

Available with 5 membrane sorts of PVDF, PES, MCE, CA and Nylon

3 membrane pore sizes of 0.10 µm, 0.22 µm and 0.45 µm

4 volume sizes of 150, 250, 500 and 1000ml

Light weight and heavy wall construction

Designed wide and easy access bottle mouth for efficiently and stably

Non-pyrogenic

Gamma irradiation sterilized

Packaged in easy peel-to-open plastic bag

Each individual unit is lot-numbered for easy identification



Membrane Material	Pore Size (µm)	Capacity (ml)	Membrane Diameter (mm)	Qty	Cat No.
PES	0.10	150	Ø50	24/PK	EXBT0150BPS01AWS
	0.10	250	Ø50	24/PK	EXBT0250BPS01AWS
	0.10	500	Ø75	24/PK	EXBT0500BPS01BWS
	0.10	1000	Ø91	24/PK	EXBT1000BPS01CWS
	0.22	150	Ø50	24/PK	EXBT0150BPS02AWS
	0.22	250	Ø50	24/PK	EXBT0250BPS02AWS
	0.22	250	Ø75	24/PK	EXBT0250BPS02BWS
	0.22	500	Ø75	24/PK	EXBT0500BPS02BWS
	0.22	1000	Ø91	24/PK	EXBT1000BPS02CWS
	0.45	150	Ø50	24/PK	EXBT0150BPS04AWS
	0.45	250	Ø50	24/PK	EXBT0250BPS04AWS
	0.45	250	Ø75	24/PK	EXBT0250BPS04BWS
	0.45	500	Ø75	24/PK	EXBT0500BPS04BWS
	0.45	1000	Ø91	24/PK	EXBT1000BPS04CWS
	0.10	150	Ø50	24/PK	EXBT0150BPV01AWS
	0.10	250	Ø50	24/PK	EXBT0250BPV01AWS
PVDF	0.10	500	Ø75	24/PK	EXBT0500BPV01BWS
	0.10	1000	Ø91	24/PK	EXBT1000BPV01CWS
	0.22	150	Ø50	24/PK	EXBT0150BPV02AWS
	0.22	250	Ø50	24/PK	EXBT0250BPV02AWS
	0.22	500	Ø75	24/PK	EXBT0500BPV02BWS
	0.22	1000	Ø91	24/PK	EXBT1000BPV02CWS
	0.45	150	Ø50	24/PK	EXBT0150BPV04AWS
	0.45	250	Ø50	24/PK	EXBT0250BPV04AWS
	0.45	500	Ø75	24/PK	EXBT0500BPV04BWS
	0.45	1000	Ø91	24/PK	EXBT1000BPV04CWS

Membrane Material	Pore Size (µm)	Capacity (ml)	Membrane Diameter (mm)	Qty	Cat No.
MCE	0.22	150	Ø50	24/PK	EXBT0150BNC02AWS
	0.22	250	Ø50	24/PK	EXBT0250BNC02AWS
	0.22	500	Ø75	24/PK	EXBT0500BNC02BWS
	0.22	1000	Ø91	24/PK	EXBT1000BNC02CWS
	0.45	150	Ø50	24/PK	EXBT0150BNC04AWS
	0.45	250	Ø50	24/PK	EXBT0250BNC04AWS
	0.45	500	Ø75	24/PK	EXBT0500BNC04BWS
	0.45	1000	Ø91	24/PK	EXBT1000BNC04CWS
	0.22	150	Ø50	24/PK	EXBT0150BPX02AWS
	0.22	250	Ø50	24/PK	EXBT0250BPX02AWS
PES Hi-Flo	0.22	500	Ø75	24/PK	EXBT0500BPX02BWS
	0.22	1000	Ø91	24/PK	EXBT1000BPX02CWS
	0.45	150	Ø50	24/PK	EXBT0150BPX04AWS
	0.45	250	Ø50	24/PK	EXBT0250BPX04AWS
	0.45	500	Ø75	24/PK	EXBT0500BPX04BWS
	0.45	1000	Ø91	24/PK	EXBT1000BPX04CWS
	0.22	150	Ø50	24/PK	EXBT0150BNY02AWS
	0.22	250	Ø50	24/PK	EXBT0250BNY02AWS
	0.22	500	Ø75	24/PK	EXBT0500BNY02BWS
	0.22	1000	Ø91	24/PK	EXBT1000BNY02CWS
Nylon	0.45	150	Ø50	24/PK	EXBT0150BNY04AWS
	0.45	250	Ø50	24/PK	EXBT0250BNY04AWS
	0.45	500	Ø75	24/PK	EXBT0500BNY04BWS
	0.45	1000	Ø91	24/PK	EXBT1000BNY04CWS
	0.22	150	Ø50	24/PK	EXBT0150BCA02AWS
	0.22	250	Ø50	24/PK	EXBT0250BCA02AWS
	0.22	500	Ø75	24/PK	EXBT0500BCA02BWS
	0.22	1000	Ø91	24/PK	EXBT1000BCA02CWS
	0.45	150	Ø50	24/PK	EXBT0150BCA04AWS
	0.45	250	Ø50	24/PK	EXBT0250BCA04AWS
CA	0.45	500	Ø75	24/PK	EXBT0500BCA04BWS
	0.45	1000	Ø91	24/PK	EXBT1000BCA04CWS

Solution Bottle



Capacity(ml)	Sterile	Package	Cat No.
150	Yes	24/PK	EXB00150B000000WS
250	Yes	24/PK	EXB00250B000000WS
500	Yes	24/PK	EXB00500B000000WS
1000	Yes	24/PK	EXB01000B000000WS

Tube Vacuum Filters



Description

150mL Top Vacuum Filter with 50mL centrifuge tube, Sterile

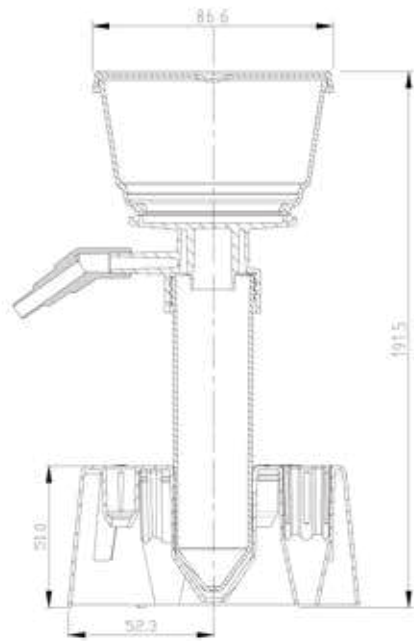
Purpose

Minimizes unnecessary transfers by filtering directly into 50mL centrifuge tube

Materials

Housing: Lid, Cup(GPPS/General Polystyrene);
Connect(ABS/Acrylonitrile-Butadiene-Styrene);
Hose connector(PP/Polypropylene);
Tube: PP(Polypropylene); Cap: HDPE(High-density Polyethylene)
Stand: PP (Polypropylene)

Dimensions (Unit: mm)



Features

- Available with 5 membrane types of PVDF, PES, MCE, NYLON, CA
- 2 pore sizes: 0.22 and 0.45µm
- Membrane type and pore size printed on unit
- Tube stand is available with 1.5mL, 2.0mL, 15mL, 50mL conical centrifuge tubes
- Each polypropylene centrifuge tube is supplied with an individually wrapped cap for storage
- Designed hose connector can fit multiplicate hose diameters
- Effective filtration area of membrane: 15.16cm²
- Hold-up Volume after purge: ≤3mL
- ADNase/RNase free and Non-pyrogenic
- Sterilized by irradiation SAL 10⁻⁶ (ISO11137) Shelf Life: 3 years after month of production
- Manufactured in a class 100,000 clean room environment
- Manufactured under ISO13485 and ISO9001 quality management system

Membrane Performance Characteristics

Membrane material	PVDF	PVDF	MCE	MCE
Pore size	0.22µm	0.45µm	0.22µm	0.45µm
Average bubble point	56 psi	25 psi	51 psi	31 psi
Flow me(at 13psi)	7.2mL/min/cm ²	29mL/min/cm ²	18µL/min/cm ²	60µL/min/cm ²

Membrane material	Pore size	Water flow rate (mL/min/cm ² @ 0.7bar, 10psi)	Water bubble point (psi)
PES	0.22µm	19.3~34.6	53.0~69.0
PES	0.45µm	38.0~100.0	36.0~48.0
NYLON	0.22µm	8.07~14.08	40.0~60.0
NYLON	0.45µm	16	29



Sample Preparation

Membrane Performance Characteristics

Membrane material	CA	CA
Pore size	0.22µm	0.45µm
Minimum bubble point psi(kg/cm ²)	50 -3.5	30 -2.1
Typical flow rate, mL/min/cm ² @ 10psi (0.7kg/cm ²)	16.1 (-1.13)	54.7 (-3.85)

Tube Top Vacuum Filters

Ordering information

Product Code	Membrane Type	Pore Size	Capacity	Membrane Diameter	Sterilization	Packaging Configuration
EXBU0150BCA04AWS	CA	0.45µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BCA02AWS	CA	0.22µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BPS04AWS	PES	0.45µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BPS02AWS	PES	0.22µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BNC04AWS	MCE	0.45µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BNC02AWS	MCE	0.22µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BPV04AWS	PVDF	0.45µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BPV02AWS	PVDF	0.22µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BNY04AWS	NYLON	0.45µm	150mL	ø50mm	Yes	1/bag, 24/case
EXBU0150BNY02AWS	NYLON	0.22µm	150mL	ø50mm	Yes	1/bag, 24/case

Tube Vacuum Filters System

Ordering information

Product Code	Membrane Type	Pore Size	Capacity	Membrane Diameter	Sterilization	Packaging Configuration
EXVS0150BCA04AZS	CA	0.45µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BCA02AZS	CA	0.22µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BPS04AZS	PES	0.45µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BPS02AZS	PES	0.22µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BNC04AZS	MCE	0.45µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BNC02AZS	MCE	0.22µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BPV04AZS	PVDF	0.45µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BPV02AZS	PVDF	0.22µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BNY04AZS	NYLON	0.45µm	150mL	ø50mm	Yes	1/bag, 12/case
EXVS0150BNY02AZS	NYLON	0.22µm	150mL	ø50mm	Yes	1/bag, 12/case

Centrifuge Filters - Centrex™



GVS centrifuge filters, Centrex, has various type of membranes and make able the end users to do a larger sample preparation, with a considerable reduction of contamination risk. Thanks to the GVS knowledge in filtration, using Centrex you can reduce the risk of cross contamination.

Characteristics

- A Centrifugal filter units with various types of membrane filter
- A Rapid and simple preparation of a large number of samples
- A Ideal for automated systems and high-speed batch filtration with robots
- A Considerably reduced contamination risk when working with radioactive biologically hazardous material
- A Cross contamination avoided
- A Receiver Tubes 1.5 or 5 mL
- A Housing Material Polypropylene

Typical Applications

- A 0.45 µm cellulose acetate membrane for the rapid elution of agarose gels
- A Nylon 66 and cellulose acetate membranes for the removal of particles and microorganisms from HPLC samples
- A Sample preparation for quality control
- A Cellulose acetate and nitrocellulose membrane for rapid clearing and filtration of aqueous solutions

Ordering information

Membrane	Pore Size (µm)	Color	1.5 mL Sterile	1.5 mL non-Sterile	5 mL Sterile	5 mL non-Sterile
			50/pk	250/pk	50/pk	250/pk
Nylon 66	0.2	Brown	10467003	-	10467015	10467010
Nylon 66	0.45	Tan	10467007	10467002	10467021	10467012
Cellulose Acetate	0.2	Blue	10467004	10467009	10467013	-
Cellulose Acetate	0.45	White	10467006	10467011	10467017	-
Cellulose Acetate	0.8	Green	10467008	-	-	-
Nitrocellulose	0.2	Pink	10467001	-	-	-
Nitrocellulose	0.45	Rust	10467005	-	10467019	-

Centrifugal Filters



Description

Centrifugal Filters, With 50mL conical tube, PES membrane, Non-sterile.

Purpose

For the centrifugal concentration and purification of biological samples.

Materials

Cap/Sealing gasket: PE (Polyethylene) Color: White

Centrifuge tube: PP (Polypropylene)

Filter: Filter slice (PE/Polyethylene)

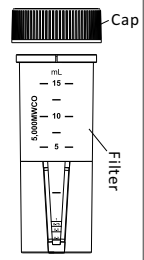
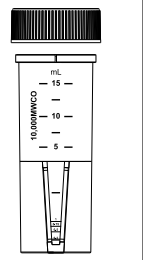
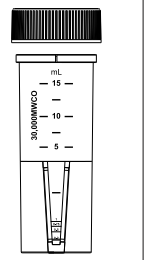
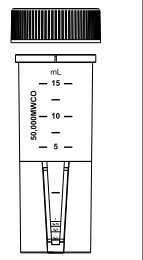
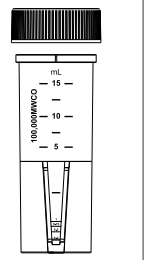
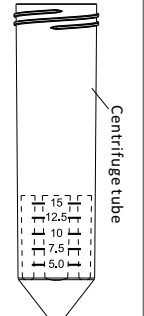
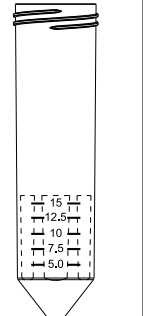
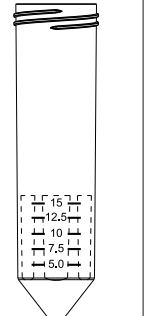
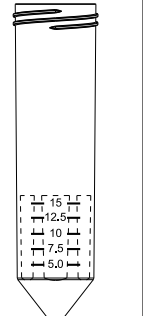
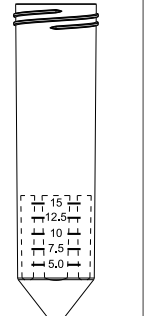
Filter tube (MBS/Methyl methacrylate-Butadiene-Styrene);

Membrane: PES (Polyethersulfone)

Features

- A Operating temperature range: 0°C - 40°C
- A Available in multiple pore sizes with the following defined Molecular Weight Cut-Offs (MWCO): 5, 10, 30, 50 and 100 KD
- A Maximum Sample Volume: 15.0 mL (Swinging bucket), 12.0 mL (Fixed angle rotor)
- A Final Concentrate Volume: 200 µL
- A Fits centrifuges that accept standard 50 mL conical tubes
- A Maximum Centrifugal Force: Swinging bucket rotor (3,000 x g), Fixed angle rotor (4,000 x g)
- A Active membrane area: 9.7 cm²
- A Provides high recoveries more than 80%
- A The vertical design and available membrane surface area provide fast sample processing
- A Features deadstop to prevent samples from spinning to dryness
- A Manufactured in a class 100,000 room environment
- A Manufactured under ISO13485 and ISO9001 quality management system



5 KD	10 KD	30 KD	50 KD	100 KD
				
				

Dimensions(Unit:mm)

Filter device in tube (capped)

Length: 119.5 mm Diameter: 33.7 mm

Filter device

Length: 72.5mm Diameter: 29.3 mm

Sample Preparation

The membrane is not compatible with the following

- A Acetic Acid (≥ 25%)
- A Acetonitrile (≥ 30%)
- A Aliphatic & aromatic esters
- A Amines
- A Ammonium hydroxide (≥ 5%) Aromatic & chlorinated hydrocarbons Butyl acetate (≥ 40%)
- A Dimethyl acetamide (DMAC) (≥ 30%)
- A Ethers
- A Hydrochloric acid (≥ 0.5 N at 50°C)
- A Isopropyl Alcohol (≥ 25%)
- A Ketone
- A Methylene chloride (≥ 1%)
- A Methyl ethyl ketone (≥ 1%)
- A Phosphoric acid (≥ 1 N)
- A Sodium deoxycholate (≥ 5%)
- A Sodium hydroxide (≥ 0.5 N at 50°C) Sodium hypochlorite (≥ 0.04%)
- A Tetrahydrofuran (≥ 5%)
- A Toluene (≥ 1%)

Ordering information

Product Code	MWCO	Sterilization	Quantity/Box	Quantity/Case
CEF50W005KD08120	5KD	No	8	96
CEF50W005KD24040	5KD	No	24	96
CEF50W010KD08120	10KD	No	8	96
CEF50W010KD24040	10KD	No	24	96
CEF50W030KD08120	30KD	No	8	96
CEF50W030KD24040	30KD	No	24	96
CEF50W050KD08120	50KD	No	8	96
CEF50W050KD24040	50KD	No	24	96
CEF50W100KD08120	100KD	No	8	96
CEF50W100KD24040	100KD	No	24	96



Centrifugal Filters



Description

Centrifugal Filters, With 15mL conical tube, PES membrane, Non-sterile

Purpose

For the centrifugal concentration and purification of biological samples

Materials

Cap/Sealing gasket: PE (Polyethylene) Color: White
Centrifuge tube: PP (Polypropylene)
Filter: MBS (Methyl methacrylate-Butadiene-Styrene)
Membrane: PES (Polyethersulfone)

Features

- A Operating temperature range: 0°C - 40°C
- A Available in multiple pore sizes with the following defined Molecular Weight Cut-Offs (MWCO): 5, 10, 30, 50 and 100 KD
- A Maximum Sample Volume: 5.0 mL
- A Final Concentrate Volume: 40-100 µL
- A Fits centrifuges that accept standard 15 mL conical tubes
- A Maximum Centrifugal Force: Swinging bucket rotor (3,000 x g), Fixed angle rotor (7,500 x g for 5, 10 KD; 5,000 x g for 30, 50, 100 KD)
- A Active membrane area: 3.5 cm²
- A Provides high recoveries more than 90%
- A The vertical design and available membrane surface area provide fast sample processing
- A Features deadstop to prevent samples from spinning to dryness
- A Manufactured in a class 100,000 room environment
- A Manufactured under ISO13485 and ISO9001 quality management system



5 KD	10 KD	30 KD	50 KD	100 KD

Dimensions(Unit:mm)

Filter device in tube (capped)

Length: 123.4 mm Diameter: 22mm

Filter device

Length: 68mm Diameter: 17.1 mm

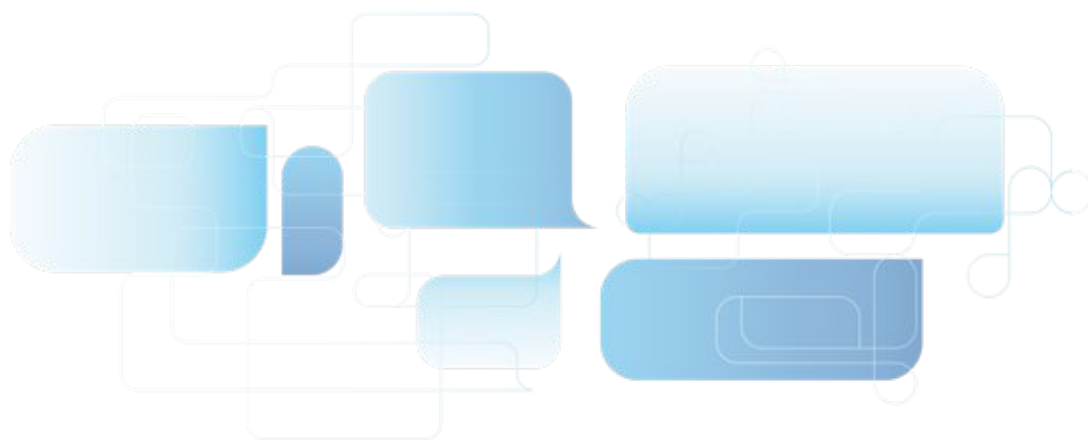
Sample Preparation

The membrane is not compatible with the following

- Acetic Acid ($\geq 25\%$)
- Acetonitrile ($\geq 30\%$)
- Aliphatic & aromatic esters
- Amines
- Ammonium hydroxide ($\geq 5\%$)
- Aromatic & chlorinated hydrocarbons
- Butyl acetate ($\geq 40\%$)
- Dimethyl acetamide (DMAC) ($\geq 30\%$)
- Ethers
- Hydrochloric acid (≥ 0.5 N at 50°C)
- Isopropyl Alcohol ($\geq 25\%$)
- Ketone
- Methylene chloride ($\geq 1\%$)
- Methyl ethyl ketone ($\geq 1\%$)
- Phosphoric acid (≥ 1 N)
- Sodium deoxycholate ($\geq 5\%$)
- Sodium hydroxide (≥ 0.5 N at 50°C)
- Sodium hypochlorite ($\geq 0.04\%$)
- Tetrahydrofuran ($\geq 5\%$)
- Toluene ($\geq 1\%$)

Ordering information

Product Code	MWCO	Sterilization	Quantity/Box	Quantity/Case
CEF15W005KD24040	5KD	No	24	96
CEF15W010KD24040	10KD	No	24	96
CEF15W030KD24040	30KD	No	24	96
CEF15W050KD24040	50KD	No	24	96
CEF15W100KD24040	100KD	No	24	96



Centrifugal Filters



Description

Centrifugal Filters, With 2.0mL micro centrifuge tube, PES membrane, Non-sterile

Purpose

For the centrifugal concentration and purification of biological samples

Materials

Micro centrifuge tube: PP (Polypropylene)
Filter: MBS (Methyl methacrylate-Butadiene-Styrene)
Membrane: PES (Polyethersulfone)

Dimensions(Unit:mm)

Filter device in tube (capped)

Length: 48.1mm Diameter: 12.9mm

Filter device

Length: 30mm Diameter: 12.6mm

Features

- Operating temperature range: 0°C - 40°C
- Available in multiple pore sizes with the following defined Molecular Weight Cut-Offs (MWCO): 5, 10, 30, 50 and 100 KD Maximum
- Sample Volume: 500 µL
- Final Concentrate Volume: 20 - 50 µL
- Fits centrifuges that accept standard 2.0 mL conical tubes
- Maximum Centrifugal Force: Fixed angle rotor (7,500 x g)
- Active membrane area: 0.65 cm²
- Provides high recoveries more than 80%
- The vertical design and available membrane surface area provide fast sample processing
- Features deadstop to prevent samples from spinning to dryness
- Manufactured in a class 100,000 room environment
- Manufactured under ISO13485 and ISO9001 quality management system



3 KD	5 KD	10 KD	30 KD	50 KD	100 KD

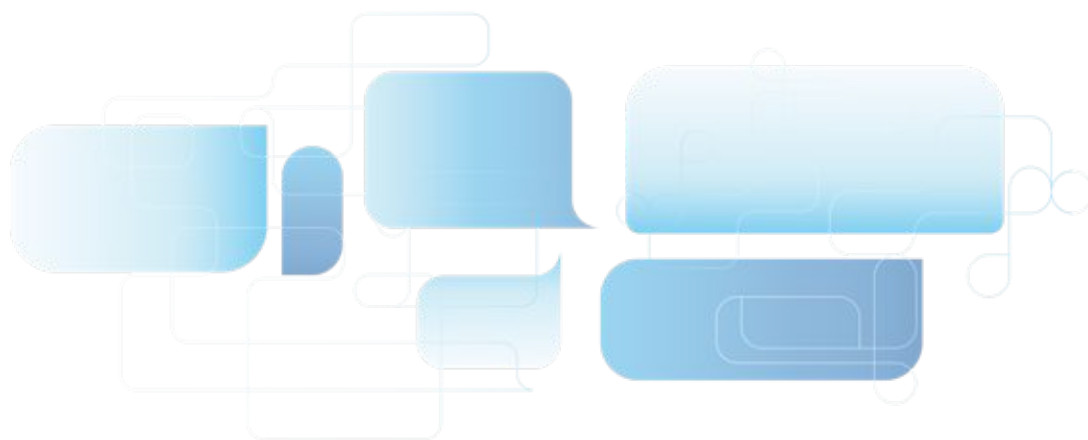
Sample Preparation

The membrane is not compatible with the following

- Acetic Acid ($\geq 25\%$)
- Acetonitrile ($\geq 30\%$)
- Aliphatic & aromatic esters
- Amines
- Ammonium hydroxide ($\geq 5\%$)
- Aromatic & chlorinated hydrocarbons
- Butyl acetate ($\geq 40\%$)
- Dimethyl acetamide (DMAC) ($\geq 30\%$)
- Ethers
- Hydrochloric acid (≥ 0.5 N at 50°C)
- Isopropyl Alcohol ($\geq 25\%$)
- Ketone
- Methylene chloride ($\geq 1\%$)
- Methyl ethyl ketone ($\geq 1\%$)
- Phosphoric acid (≥ 1 N)
- Sodium deoxycholate ($\geq 5\%$)
- Sodium hydroxide (≥ 0.5 N at 50°C)
- Sodium hypochlorite ($\geq 0.04\%$)
- Tetrahydrofuran ($\geq 5\%$)
- Toluene ($\geq 1\%$)

Ordering information

Product Code	MWCO	Sterilization	Quantity/Box	Quantity/Case
CEF02W005KD25120	5KD	No	25	300
CEF02W010KD25120	10KD	No	25	300
CEF02W030KD25120	30KD	No	25	300
CEF02W050KD25120	50KD	No	25	300
CEF02W100KD25120	100KD	No	25	300



Micro Centrifugal Filters

Features

- Particularly designed for standard benchtop micro centrifuges
- Filter bacteria, particles and cells to prepare HPLC samples, and remove DNA from agarose or acrylamide gels



Ordering information

Product Code	Description	Qty.
MITBYCAH022A	2.0 mL Centrifugal Filters, hydrophilic CA, 0.22 µm	50 Sets/PK
MITBYPVDF022A	2.0 mL Centrifugal Filters, organic PVDF, 0.22 µm	50 Sets/PK
MITBZCAH022A	15 mL Centrifugal Filters, hydrophilic CA, 0.22 µm	50 Sets/PK
MITBZPVDF022A	15 mL Centrifugal Filters, organic PVDF, 0.22 µm	50 Sets/PK
MITBWCAH022A	50 mL Centrifugal Filters, hydrophilic CA, 0.22 µm	50 Sets/PK
MITBWPVDF022A	50 mL Centrifugal Filters, organic PVDF, 0.22 µm	50 Sets/PK
MITBYCAH045A	2.0 mL Centrifugal Filters, hydrophilic CA, 0.45 µm	50 Sets/PK
MITBYPVDF045A	2.0 mL Centrifugal Filters, organic PVDF, 0.45 µm	50 Sets/PK
MITBZCAH045A	15 mL Centrifugal Filters, hydrophilic CA, 0.45 µm	50 Sets/PK
MITBZPVDF045A	15 mL Centrifugal Filters, organic PVDF, 0.45 µm	50 Sets/PK
MITBWCAH045A	50 mL Centrifugal Filters, hydrophilic CA, 0.45 µm	50 Sets/PK
MITBWPVDF045A	50 mL Centrifugal Filters, organic PVDF, 0.45 µm	50 Sets/PK
MITBYMCE022A	2mL Centrifugal Filters, MCE, 0.22µm	50 Sets/PK
MITBYMCE045A	2mL Centrifugal Filters, MCE, 0.45µm	50 Sets/PK
MITBYNY022A	2mL Centrifugal Filters, Nylon, 0.22µm	50 Sets/PK
MITBYNY045A	2mL Centrifugal Filters, Nylon, 0.45µm	50 Sets/PK
MITBYPESH022A	2mL Centrifugal Filters, Hydrophilic PES, 0.22µm	50 Sets/PK
MITBYPTFE022A	2mL Centrifugal Filters, PTFE, 0.22µm	50 Sets/PK
MITBYPTFE045A	2mL Centrifugal Filters, PTFE, 0.45µm	50 Sets/PK
MITBYPTFEH022A	2mL Centrifugal Filters, Hydrophilic PTFE, 0.22µm	50 Sets/PK
MITBYPTFEH045A	2mL Centrifugal Filters, Hydrophilic PTFE, 0.45µm	50 Sets/PK
MITBYPVDFH022A	2mL Centrifugal Filters, Hydrophilic PVDF, 0.22µm	50 Sets/PK
MITBYPVDFH045A	2mL Centrifugal Filters, Hydrophilic PVDF, 0.45µm	50 Sets/PK
MITBYCAH022SA	2mL Centrifugal Filters, Hydrophilic CA, 0.22µm, sterile	50 Sets/PK
MITBYMCE022SA	2mL Centrifugal Filters, MCE, 0.22µm, sterile	50 Sets/PK
MITBYNY022SA	2mL Centrifugal Filters, Nylon, 0.22µm, sterile	50 Sets/PK
MITBYNY045SA	2mL Centrifugal Filters, Nylon, 0.45µm, sterile	50 Sets/PK
MITBYPVDF022SA	2mL Centrifugal Filters, PVDF, 0.22µm, sterile	50 Sets/PK
MITBYPTFEH022SA	2mL Centrifugal Filters, Hydrophilic PTFE, 0.22µm, sterile	50 Sets/PK
MITBYPTFEH045SA	2mL Centrifugal Filters, Hydrophilic PTFE, 0.45µm, sterile	50 Sets/PK
MITBZPESH022A	15mL Centrifugal Filters, Hydrophilic PES, 0.22µm	50 Sets/PK
MITBZPVDFH022A	15mL Centrifugal Filters, Hydrophilic PVDF, 0.22µm	50 Sets/PK
MITBZPVDFH045A	15mL Centrifugal Filters, Hydrophilic PVDF, 0.45µm	50 Sets/PK
MITBZCAH022SA	15mL Centrifugal Filters, Hydrophilic CA, 0.22µm, sterile	50 Sets/PK
MITBZPVDF022SA	15mL Centrifugal Filters, PVDF, 0.22µm, sterile	50 Sets/PK
MITBWMCE045A	50mL Centrifugal Filters, MCE, 0.45µm	50 Sets/PK
MITBWNLO45A	50mL Centrifugal Filters, Nylon, 0.45µm	50 Sets/PK
MITBWPESH022A	50mL Centrifugal Filters, Hydrophilic PES, 0.22µm	50 Sets/PK
MITBWPTEFH022A	50mL Centrifugal Filters, Hydrophilic PTFE, 0.45µm	50 Sets/PK
MITBWPVDFH022A	50mL Centrifugal Filters, Hydrophilic PVDF, 0.22µm	50 Sets/PK
MITBWPVDFH045A	50mL Centrifugal Filters, Hydrophilic PVDF, 0.45µm	50 Sets/PK
MITBWPVDF022SA	50mL Centrifugal Filters, PVDF, 0.22µm, sterile	50 Sets/PK

Note: Please contact us for more specifications.

Bottle-top Filters - ZapCap™



GVS Bottle-top Filters is ideal solution for the filtration of cell culture media and HPLC media solution. ZapCap is a complete 500 mL filtration unit to connect with receiver bottles. ZapCap are equipped with side tubing nozzle (bottle-top). This ready to use filter is available with prefilter too. The connection seals fit on any standard bottle 33 to 45 mm and the membrane diameter is 76 mm with an effective area of filtration of 39.2 cm². Can be used up to 50°C.

ZapCap™ Selection Guide

ZapCap-S with included package of 12 glass fiber prefilter for high flow rates

ZapCap-S Plus with a glass fiber prefilter for very high flow rates already inserted into the housing.

ZapCap-CR, the chemical-resistant bottle-top filter

Typical Applications

ZapCap-S - Filtration of cell culture media

Cellulose acetate membrane filters (CA) with extremely low protein binding for cell culture media and other aqueous solutions. Sterile filtration of solutions that cannot be autoclaved

ZapCap-S Plus - Sterile filtration and clarification of difficult-to-filter aqueous solutions

ZapCap-CR - Filtration of HPLC solutions

Polyamide Nylon 66 membrane filters (NY) for the retention of particles $\geq 0.2 \mu\text{m}$ in HPLC/FPLC solutions when the column packing is $\leq 10 \mu\text{m}$

PTFE membrane filters for the retention of particles $\geq 0.45 \mu\text{m}$ in organic solutions; strong acids or aldehydes

Ordering information

Membrane Material	Pore Size (μm)	Housing Material	Description	Quantity	Product Code
Cellulose Acetate	0.2	Polystyrene	ZapCap-S / Sterile	12/pk	10443401
Cellulose Acetate	0.45	Polystyrene	ZapCap-S / Sterile	12/pk	10443411
Cellulose Acetate with glass fiber prefilter	0.2	Polystyrene	ZapCap-S PLUS / Sterile	12/pk	10443430
Cellulose Acetate with glass fiber prefilter	0.45	Polystyrene	ZapCap-S PLUS / Sterile	12/pk	10443435
Nylon 66	0.2	Polypropylene	ZapCap-CR / Non Sterile	12/pk	10443421
Nylon 66	0.45	Polypropylene	ZapCap-CR / Non Sterile	12/pk	10443423
PTFE	0.45	Polypropylene	ZapCap-CR / Non Sterile	12/pk	10443425

Extractor - Ethidium bromide (EtBr) waste reduction system

Extractor



One-step filtration polypropylene funnel device for the rapid removal of ethidium bromide from gel-staining solutions. This disposable unit contains an activated carbon matrix, which removes > 99% of ethidium bromide from electrophoretic buffer quickly and easily. Each device can decontaminate up to 10 litres of gel-staining solution. After filtration, the decontaminated solution can be safely poured down the laboratory drain. The extractor funnel device fits most standard laboratory flasks and bottles (neck size 33 to 45 mm), and the unit includes a cap for storage between uses. The polypropylene housing is chemically resistant to organics. Also included in the package are glass fiber prefilters, which remove gel pieces and other debris to avoid premature clogging of the carbon filter.



Ordering information

Product Code	Quantity	Description
10448030	2/pk	Ethidium Bromide Extractor Waste System, Polypropylene
10448031	6/pk	Ethidium Bromide Extractor Waste System, Polypropylene



Filter Holders for Membranes

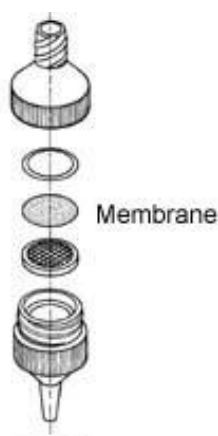
GVS offers a selection of filtration holders and apparatus that are designed to ensure precise filtration work with GVS membranes. In most applications, the filter holder is just as important as the filter for accurate results every time. Filter holders are available for a wide variety of applications including air analysis, chemotaxis, tissue culturing and general aqueous and solvent filtration.

Available products are: 13, 25, and 47 mm Filter Holder, and 47 mm Gravi-Seal.

Product Selection Guide: Filter Holders

Specifications	13 mm	25 mm	47 mm
Materials	Celcon (acetal copolymer)	Polypropylene - body & support	Polypropylene - body & support
O-rings	PTFE	Silicone	Silicone
Filter Size	13 mm	25 mm	47 mm
Prefilter Cap size	10 mm	21 mm	42 mm
Filtration Area	0.8 cm ²	3.5 cm ²	13.5 cm ²
Diameter	16 mm (0.6 in)	30 mm (1.2 in)	65.0 mm (2.6 in)
Height	35 mm (1.4 in)	30 mm (1.2 in)	50 mm (2.0 in)
Maximum Liquid Temperature	80°C (176°F)	80°C (176°F)	80°C (176°F)
Differential Pressure	2.8 bar (40 psi)	2.9 bar (42 psi)	4.9 bar (71 psi)
Autoclaving	15 minutes at 121°C (250°F) and 15 psi	20 minutes at 121°C (250°F) and 15 psi	20 minutes at 121°C (250°F) and 15 psi
Connections, Inlet	Female Luer Lock	Female Luer Lock	1/4 inch NPTM, Female Luer Slip
Connections, Outlet	Male Luer Slip	Male Luer Slip	1/4 inch NPTM, Female Luer Slip

13 mm Filter Holder, Swinney



The GVS Swinney 13 mm filter holder is optimized for small volume (1-5 mL) particulate removal from fluids dispensed with a syringe. The holder is resistant to alcohols, esters, ethers, glycols, aromatic hydrocarbons, halogenated hydrocarbons, ketones, oils, photoresists and many other chemicals. Although suitable for most weak acids and bases, we recommend that you test for compatibility with acids.

Features & Benefits

- A High resistant organic components
- A No need for specific tools
- A Quick efficient assembly

Typical Applications

- A Biofluids
- A Ophthalmics
- A Gas chromatography samples
- A Lubricants

Ordering information

Product Code	Quantity	Description
1220950	5/pk	Filter Holder, Swinney, 13 mm diameter

25 mm Filter Holder, Polypropylene



The GVS polypropylene 25 mm filter holders are very useful for ultra cleaning and sterilizing small volumes of liquids from a syringe. Due to the polypropylene construction, they can be used over a wide temperature range with excellent chemical compatibility. In the case of the syringe, the inlet cap locks into the base to prevent twisting damage to the membrane as the cap is tightened. Projection lugs on the base and the cap allow these units to be assembled and sealed quickly and efficiently. Typically, the 25 mm is used to filter up to 50 mL of sample. With the syringe holder type, dual support screens prevent

membrane rupture in case back pressure is applied.

It also allows for bi-directional sample flow. The polypropylene holder has a broad chemical compatibility range. It can withstand temperatures up to 121°C. and be autoclaved.

Features & Benefits

- AExcellent chemical compatibility
- AQuick, efficient assembly
- ANo need for special tools
- AExcellent temperature and chemical resistance
- ASeveral filter holders can be attached together for serial filtration

Typical Applications

- APoint of use sampling
- AParticulate removal
- AUsed in filtering chromatography solvents
- AGeneral filtration

Ordering information

Product Code	Quantity	Description
1214250	10/pk	Filter Holder Polypropylene: 25 mm diameter
1214526	10/pk	Filter Holder Polypropylene Support Screen: 25 mm

47 mm Filter Holder, Polypropylene



The GVS polypropylene 47 mm filter holder is designed especially for ultra cleaning and sterilizing liquids under positive pressure. In addition this holder can be used for aseptic sampling of liquids or gases at point-of-use or when samples must be collected and processed on-site. The polypropylene material allows these holders to be used over a wide temperature range with excellent chemical compatibility. Sealing is achieved by simple hand tightening

of the locking ring. The 47 mm In-Line holder has dual support screens, which allow for flow in either direction. The inlet cap design and exterior locking ring allow the unit to be assembled quickly and efficiently without tearing the membrane. 3 O-rings help to prevent leaks with all membranes. The 47 mm can filter up to 1 liter depending upon the viscosity of the sample. The polypropylene holder can withstand temperatures up to 121°C and be autoclaved.

Features & Benefits

- AEasy to use - unique lock ring design assures proper sealing without damage to the membrane
- AEasy to clean
- AConforms with EPA Method 1311 for Toxicity Characteristic Leaching Procedure, 40 CFR, Part 261, 1991 Hazardous Waste Compliance Guide

Typical Applications

- APoint of use sampling
- AParticulate removal
- AUsed in filtering chromatography solvents
- AGeneral filtration

Ordering information

Product Code	Quantity	Description
1262579	1/pk	Filter Holder Polypropylene: 47 mm
1214260	10/pk	Filter Holder Polypropylene: 47 mm

24-Well Micro-Filter Plates

High capacity (up to 7 mL) meets the requirements of receptor binding analysis, protein binding determination, ELISPOT analysis, sample preparation, removal of fluorescent dyes, etc.

Features

- A No dead volume, high recovery
- A Removable Guide plate and unique designed filter plate
- A Use with negative pressure or centrifugal method
- A Corresponding collection plate

Ordering information

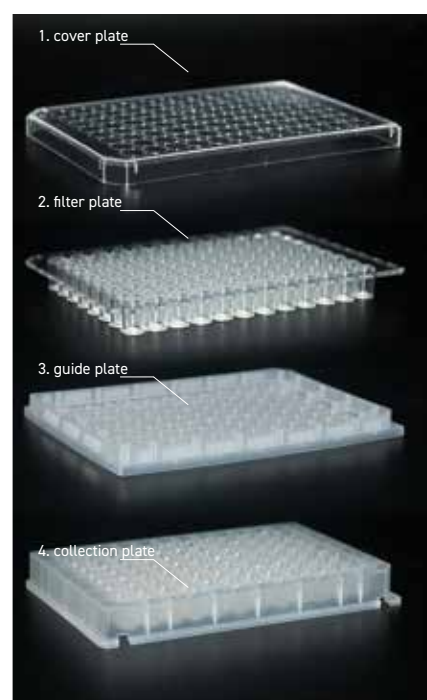
Product Code	Description	Qty.
MIFPB24PESH022A	24-Well Micro-Filter Plate, 7ml, PES, 0.22 µm, and a collection plate	2 Sets/PK
MIFPB24PVDF022A	24-Well Micro-Filter Plate, 7ml, PVDF, 0.22 µm, and a collection plate	2 Sets/PK
MIFPB24PVDF045A	24-Well Micro-Filter Plate, 7ml, PVDF, 0.45 µm, and a collection plate	2 Sets/PK
MIFPB24MCE022A	24-Well Micro-Filter Plate, 7ml, MCE, 0.22 µm, and a collection plate	2 Sets/PK
MIFPB24MCE045A	24-Well Micro-Filter Plate, 7ml, MCE, 0.45 µm, and a collection plate	2 Sets/PK
MIFPB24NY022A	24-well Micro filter Plates, 7mL, NY, 0.22µm,	2 Sets/PK
MIFPB24MCE022SA	24-well Micro filter Plates, 7mL, MCE, 0.22µm, sterile	2 Sets/PK
MIFPB24NY022SA	24-well Micro filter Plates, 7mL, NY, 0.22µm, sterile	2 Sets/PK
MIFPB24PES022SA	24-well Micro filter Plates, 7mL, PES, 0.22µm, sterile	2 Sets/PK
MIFPB24PTFEH022SA	24-well Micro filter Plates, 7mL, Hydrophilic PTFE, 0.22µm, sterile	2 Sets/PK



96-Well Micro-Filter Plates



GVS 96-Well Micro-Filter Plates (50-250 µL) are precision injection molded of polystyrene and equipped with many different types and materials of filter membranes, such as polyvinylidene fluoride (PVDF), mixed cellulose (MCE), polytetrafluoroethylene (PTFE) and other microporous filter membranes. Seamless integration is achieved by individually sealed well and removable guide plate and collection plate.



96-Well Micro-Filter Plates

Ordering information

Product Code	Description	Qty.
MIFPB96MCE045A	96-Well Micro-Filter Plates, removable, hydrophilic MCE, 0.45 µm	10 Pcs/PK
MIFPB96MCE022A	96-Well Micro-Filter Plates, removable, hydrophilic MCE, 0.22 µm	10 Pcs/PK
MIFPB96PVDF045A	96-Well Micro-Filter Plates, removable, hydrophobic PVDF, 0.45 µm	10 Pcs/PK
MIFPB96PVDF022A	96-Well Micro-Filter Plates, removable, hydrophobic PVDF, 0.22 µm	10 Pcs/PK
MIFPB96PVDFH045A	96-Well Micro-Filter Plates, removable, hydrophilic PVDF, 0.45 µm	10 Pcs/PK
MIFPB96PVDFH022A	96-Well Micro-Filter Plates, removable, hydrophilic PVDF, 0.22 µm	10 Pcs/PK
MIFPB96PTFE045A	96-Well Micro-Filter Plates, removable, hydrophobic PTFE, 0.45 µm	10 Pcs/PK
MIFPB96PTFE022A	96-Well Micro-Filter Plates, removable, hydrophobic PTFE, 0.22 µm	10 Pcs/PK
MIFPB96PTFEH045A	96-Well Micro-Filter Plates, removable, hydrophilic PTFE, 0.45 µm	10 Pcs/PK
MIFPB96PTFEH022A	96-Well Micro-Filter Plates, removable, hydrophilic PTFE, 0.22 µm	10 Pcs/PK
MIFPBN96CA022A	96-Well Micro-Filter Plate, nonremovable, hydrophilic CA, 0.22 µm	10 Pcs/PK
MIFPBN96CA045A	96-Well Micro-Filter Plate, nonremovable, hydrophilic CA, 0.45 µm	10 Pcs/PK
MIFPBN96MCE022A	96-Well Micro-Filter Plate, nonremovable, hydrophilic MCE, 0.22 µm	10 Pcs/PK
MIFPBN96MCE045A	96-Well Micro-Filter Plate, nonremovable, hydrophilic MCE, 0.45 µm	10 Pcs/PK
MIFPBN96NY022A	96-Well Micro-Filter Plate, nonremovable, hydrophilic Nylon, 0.22 µm	10 Pcs/PK
MIFPBN96NY045A	96-Well Micro-Filter Plate, nonremovable, hydrophilic Nylon, 0.45 µm	10 Pcs/PK
MIFPBN96PES022A	96-Well Micro-Filter Plate, nonremovable, hydrophilic PES, 0.22 µm	10 Pcs/PK
MIFPBN96PTFE022A	96-Well Micro-Filter Plate, nonremovable, hydrophobic PTFE, 0.22 µm	10 Pcs/PK
MIFPBN96PTFE045A	96-Well Micro-Filter Plate, nonremovable, hydrophobic PTFE, 0.45 µm	10 Pcs/PK
MIFPBN96PTFEH022A	96-Well Micro-Filter Plate, nonremovable, hydrophilic PTFE, 0.22 µm	10 Pcs/PK
MIFPBN96PTFEH045A	96-Well Micro-Filter Plate, nonremovable, hydrophilic PTFE, 0.45 µm	10 Pcs/PK
MIFPBN96PVDF022A	96-Well Micro-Filter Plate, nonremovable, hydrophobic PVDF, 0.22 µm	10 Pcs/PK
MIFPBN96PVDF045A	96-Well Micro-Filter Plate, nonremovable, hydrophobic PVDF, 0.45 µm	10 Pcs/PK
MIFPB96NY022A	96-well Micro filter Plates, 300µL, NY, 0.22µm,	10 Pcs/PK
MIFPB96NY045A	96-well Micro filter Plates, 300µL, NY, 0.45µm,	10 Pcs/PK
MIFPB96PESH022A	96-well Micro filter Plates, 300µL, Hydrophilic PES, 0.22µm,	10 Pcs/PK
MIFPB96PTFE022A	96-well Micro filter Plates, 300µL, PTFE, 0.22µm,	10 Pcs/PK
MIFPB96PTFE045A	96-well Micro filter Plates, 300µL, PTFE, 0.45µm,	10 Pcs/PK
MIFPB96PTFEH022A	96-well Micro filter Plates, 300µL, Hydrophilic PTFE, 0.22µm,	10 Pcs/PK
MIFPB96PTFEH045A	96-well Micro filter Plates, 300µL, Hydrophilic PTFE, 0.45µm,	10 Pcs/PK
MIFPB96PVDF022A	96-well Micro filter Plates, 300µL, PVDF, 0.22µm,	10 Pcs/PK
MIFPB96PVDF045A	96-well Micro filter Plates, 300µL, PVDF, 0.45µm,	10 Pcs/PK
MIFPB96PVDFH022A	96-well Micro filter Plates, 300µL, Hydrophilic PVDF, 0.22µm,	10 Pcs/PK
MIFPB96PVDFH045A	96-well Micro filter Plates, 300µL, Hydrophilic PVDF, 0.45µm,	10 Pcs/PK
MIFPB96MCE022SA	96-well Micro filter Plates, 300µL, MCE, 0.22µm, sterile	10 Pcs/PK
MIFPB96NY022SA	96-well Micro filter Plates, 300µL, NY, 0.22µm, sterile	10 Pcs/PK
MIFPB96PES022SA	96-well Micro filter Plates, 300µL, PES, 0.22µm, sterile	10 Pcs/PK
MIFPB96PTFEH022SA	96-well Micro filter Plates, 300µL, Hydrophilic PTFE, 0.22µm, sterile	10 Pcs/PK
MIFPBN96PVDFH022SA	96-well Micro filter Plates, 300µL, Hydrophilic PVDF, 0.22µm, sterile	10 Pcs/PK
MIFPBN96CA022SA	96-well Micro filter Plates, 300µL, CA, 0.22µm, sterile	10 Pcs/PK
MIFPBY96PTFE045A	Integrated 96-well Micro filter Plates, 600µL, PTFE, 0.45µm,	10 Pcs/PK
MIFPBY96PTFEH022A	Integrated 96-well Micro filter Plates, 600µL, Hydrophilic PTFE, 0.22µm,	10 Pcs/PK
MIFPBY96PTFEH045A	Integrated 96-well Micro filter Plates, 600µL, Hydrophilic PTFE, 0.45µm,	10 Pcs/PK



Cannula filters



GVS cannula filters, commonly used in dissolution processes at the ends of the sampling cannula, help keep particulates from backing up into the tubes.

Filters are completely inert to most compounds and provide a good flow rate.

Features:

- Achieve reproducibility and consistency from test to test with GVS dissolution filters
- Keep contaminants out of dissolution samples
- Guaranteed free of chromium and heavy metal
- Made of the highest quality UHMW Sintered Polyethylene for
- Dissolution sampling methods

Characteristics:

- Length: 21,0mm
- Diameter: 9,0mm

Ordering information

Product Code	Description
FSCLBRPE010BUI01	Filter for sampling cannula 1/8" 10um blue box with 250 units
FSCLBRPE020GUI01	Filter for sampling cannula 1/8" 20um green box with 250 units
FSCLBRPE035RUI01	Filter for sampling cannula 1/8" 35um with red box with 250 units
FSCLBRPE045PUI01	Filter for sampling cannula 1/8" 45um with purple box with 250 units
FSCLBRPE070YUI01	Filter for sampling cannula 1/8" 70um with yellow box with 250 units



AFFINITY Chromatography

Product collection



HPLC Column

Affinity HPLC Column Selection and Handling Precautions

The choice of column tubes

The materials of HPLC column tubes include SS316 (stainless steel), PTFE, and PMMA etc., determined by characteristics of mobile phase, pressure degree of column and sample. SS316 is used when mobile phase is organic solvents with pressure between 5 to 30 Mpa. When the mobile phase is 100% water or buffer solution with pressure less than 4 Mpa, PMMA or PTFE is chosen for less impact on activity of biological sample.

Inner diameter

A. 1-2mm ID column, is specific used for micro LC(MLC), such as LC-Mass spectrometry. But for routine analysis, it's not easy to use. Although the solvent consumption is small, the requirement is too rigid. It need the instrument only have a very small dead volume. Besides, this kind of columns is short-life.

B. 4-6mm (3.9, 4.0, 4.6, 5.0, 6.0mm) ID columns are analytical scale and suitable for routine analysis. 4.6mm ID columns are the most usual type. Best flow rate is 1ml/min which general instruments can match with. They have high column efficiency, stable performance, and longer life time.

C. 7.8-10.0mm ID columns are semi-preparative column. Chromatographic conditions can be transplanted from analytical column. They can be equipped on normal LC instruments to collect small amount of high purity components to quality and research.

D. 20-100mm ID columns are preparative column, which can prepare a large number of pure components with commercial value. At present, although the price is higher, it is must equipped for the pharmaceutical industry.

The length of the column tube

Length of HPLC columns is between 50 and 500mm. For general analysis 150-250mm is most commonly used. Columns longer than 250mm though have high column efficiency, have much higher pressure. So it is not economic just for better efficiency to increase the column length.

The choice of packing

Particle size

particle size of commonly used packing is 3 - 10μm. Small particle size can achieve high column efficiency, but column pressure is also high. Column pressure is an important factor that cannot be ignored. High column pressure may lead to packing collapse and reduce columns' life time. Especially when mobile phase is methanol with larger water content, hydrogen reaction formed between water and methanol makes the viscosity to increase. If high column efficiency is pursued, water-acetonitrile system is recommended.

For preparative column, main pursuit is preparation volume, and separation is secondary. Generally packing with larger size than 10 μm is chosen with low cost and low column pressure.

For UHPLC which has higher column efficiency, better separation and shorter separation time, particle size is so small that the pressure is much higher than HPLC. We offer two specifications: 1.8μm and 2.2μm. UHPLC columns can withstand pressures up to 10000psi, and have good reproducibility.



The specifications of packings

Molecular weight smaller than 2000

Aqueous samples	Non-ionic	Reverse phase chromatography	C30,C18,C18-WP, C8
	Ionic	Reverse phase chromatography	C30,C18,C18-WP, C8
		Ion exchange chromatography	SAX,SCX, Transgenomic IC9ep AN, IC9ep CN
	Amino acids	Reverse phase chromatography	C18
		Aqueous samples	Transgenomic AMINO9ep amino acid column
	Organic acids	Ion exclusion chromatography	Transgenomic IC9ep organic acid column;Shodex SUGAR SH1821, KC-811
	Monosaccharides, disaccharides, oligosaccharides, Peptide	Reverse phase chromatography	NH2
Oil-soluble	Non-polar	Ion exclusion chromatography	Shodex SUGAR SH1821
		Inverting chromatography	Transgenomic CARBO9ep resin type sugar column
	Polar	Reverse phase chromatography	C18
Chiral sample	Non-polar	Reversed-phase chromatography	C18
		Normal phase chromatography	NH2, CN, SIL
	Polar	Normal phase chromatography	NH2, CN, SIL
Chiral sample		Chiral chromatography	Regis Wheelk-O, RegisPack, RegisCell

Molecular weight smaller than 2000

Aqueous samples	Non-ionic	Reversed-phase chromatography	C18-BIO
		Gel filtration chromatography (GFC)	Shodex KW-800, SB-800 HQ; Gel X series
	Proteins, polypeptides	Ion-exchange chromatography	SAX, SCX; Sep series
		Reversed-phase chromatography	C18-BIO
		Affinity chromatography	Shodex AFpak,
	Nucleic acid	Ion-exchange chromatography	SAX, SCX; Sep series
Oil-soluble Samples	Polysaccharide	Gel filtration chromatography (GFC)	Shodex KW-800, SB-800 HQ; Gel X series
		Ion-exchange chromatography	SAX, SCX; Sep series
Oil-soluble Samples		Gel filtration chromatography (GFC)	Shodex SB-800 HQ; Gel-S Series
		Reversed-phase chromatography	C18-BIO

Precautions for use of columns

Column Equilibration

When preparing to introduce your desired mobile phase into a new column, be aware of the miscibility of the solvents being introduced to the column and the solvent inside the column. If they are not, it is necessary to pump one or more miscible intermediate solvents through the column to avoid high pressure. Equilibrate the column with a minimum of 10 column volumes of mobile phase to be used.

Reversed-phase columns equilibration method

Reversed-phase columns equilibrate in as little as 20 column volumes of mobile phase. If the new eluent being introduced contains buffer salts, it is recommended that the column is flushed with a highly aqueous eluent (such as 90:10 Water: MeCN) before introducing buffer, to avoid precipitation of salts on the column. For extra precaution, introduce new buffered eluents WITHOUT the buffer component for 5-10 column volumes, and then switch to the fully buffered eluent composition. Precipitation of buffer salts on the columns is essentially irreversible and destroys the column. When switching between solvents with vastly different polarities, it may be necessary to first purge the column with a mutually miscible solvent such as Isopropyl Alcohol or Dioxane at a reduced flow rate (approximately 50% of normal). Flushing with a minimum of 5 column volumes is recommended (e.g. 10mL for a 150 x 4.6mm I.D. column).

Normal phase column equilibration method

Normal-phase columns require longer equilibration times (at least 50 column volumes). To ensure good reproducibility and faster equilibration of normal-phase columns, a small, constant percentage of water can be added to the mobile phase.

Column maintenance

Eluent pH: At pH above 8, silica gels begin to dissolve; at acidic pH below 2.0 certain bonded phases (particularly CN) become hydrolyzed and gradual loss of bonded phase can occur. While many customers use the columns outside both sides of the pH spectrum with excellent results and good column lifetime, the best lifetimes are usually obtained at intermediate pH conditions.

Pressure: To maximize column life operate at pressures up to 20 MPa (~ 3000 psi) for standard HPLC phases (UHPLC columns can be used at higher pressures, as indicated on the test chromatogram).

Sample Dissolution: Samples should be dissolved in the eluent or solvent weaker than the eluent, which helps avoid sample precipitation at the column head and inconsistent retention values. Filter sample with 0.45µ membrane to remove particulate matter before injection.

Solvents: Use HPLC or spectroscopy grade solvents that have been filtered through a 0.45µ filter. Filter all buffer solutions before use. Avoid introduction of particulates onto the column at all costs.

Guard Columns: Use a guard column of matching chemistry and particle size between the injector and main column. Guard columns need to be replaced at regular intervals as determined by sample contamination. When system backpressure limit, it is usually an indication that the guard column should be replaced. A sudden appearance of split peaks is also indicative of a need to replace the guard column.

Clean of Columns

Clean of reverse phase silica bonded phase columns

20 column volumes should be used for each wash stage:

95:5 water: ACN(Removal of buffer) → 100% ACN → 50:50 water: ACN

Clean of normal phase silica bonded phase column

20 column volumes should be used for each wash stage:

THF → Chloroform → Methylene Chloride → Hexane

Common Troubleshooting

Problem	Possible cause	Solution
No peaks or very small peaks	Detector off	Check detector
	Broken connections to recorder	Check connections
	No sample/Wrong sample	Check sample. Be sure it is not deteriorated. Check for bubbles in the vials
	Wrong settings on recorder or detector	Check attenuation. Check gain
No Flow	Pump off	Start Pump
	Flow interrupted	"Check reservoirs. Check position of the inlet tubing. Check loop for obstruction or air. Check degassing of mobile phase. Check compatibility of the mobile phase components."
	Leak	Check fittings. Check pump for leaks and precipitates. Check pump seals.
	Air trapped in the system	Disconnect column and prime pump. Flush system with 100% methanol or isopropanol. Contact servicing if necessary.
Column end leaks	Loose fitting	Tighten or replace fitting
	White powder at loose fitting	Cut tubing and replace ferrule; disassemble fitting, rinse and reassemble.
Leak at detector	Detector-seal failure	Replace detector seal or gaskets.
Leak at injection valve	Worn or scratched valve rotor	Replace valve rotor
Leak at pump	Pump seal failure	Replace pump seal; check piston for scratches and, if necessary, replace
Changing Retention Times	Buffer retention times	Use buffer with concentration greater than 20 mM.
	Contamination buildup	Flush column occasionally with strong solvent
	Equilibration time insufficient for gradient run or changes in isocratic mobile phase	Pass at least 10 column volumes through the column for gradient regeneration or after solvent changes
	First few injections - active sites	Condition column by injecting concentrated sample
	Inconsistent on-line mobile-phase mixing	Ensure gradient system is delivering a constant composition; compare with manually prepared mobile phase; partially premix mobile phase
	Selective evaporation of mobile-phase component	Cover solvent reservoirs; use less-vigorous helium purging; prepare fresh mobile phase
	Varying column temperature	Thermostat or insulate column; ensure laboratory temperature is constant.
	Active sites on column packing	Use mobil-phase modifier, competing base (basic compounds), or increase buffer strength; use higher coverage column packing.
	Column overloaded with sample	Decrease sample amount or use larger-diameter column.
	Increasing flow rate	Check and reset pump flow rate.
Increasing Retention Times	Decreasing flow rate	Check and reset pump flow rate; check for pump cavitation; check for leaking pump seals and other leaks in system
	Changing mobile-phase composition	Cover solvent reservoirs; ensure that gradient system is delivering correct composition.
	Loss of bonded stationary phase	Use mobile-phase pH between pH 2 and pH 8
Slow column equilibration time	Reversed phase ion pairing - long chain ion pairing reagents require longer equilibration time	Use ion-pairing reagent with shorter alkyl chain length
Void Time noise	Air bubbles in mobile phase	Degas or use back pressure restrictor on detector
	Positive-negative - difference in refractive index of injection solvent and mobile phase	Normal with many samples; use mobile phase as sample solvent
Drifting baseline	Negative direction (gradient elution) - absorbance of mobile-phase A	Use non-UV absorbing mobile phase solvents; use HPLC grade mobile phase solvents; add UV absorbing compound to mobile phase B.
	Positive direction (gradient elution) - absorbance of mobile phase B	Use higher UV absorbance detector wavelength; use non-UV absorbing mobile phase solvents; use HPLC grade mobile phase solvents; add UV absorbing compound to mobile phase A.
	Positive direction - contamination buildup and elution	Flush column with strong solvent; clean up sample; use HPLC grade solvents
	Wavy or undulating - temperature changes in room	Monitor and control changes in room temperature; insulate column or use column oven; cover refractive index detector and keep it out of air currents.
Baseline noise	Continuous - detector lamp problem or dirty cell	Replace UV lamp(each should last 2000 h; clean and flush flow cell.
	Gradient or isocratic proportioning- lack of solvent mixing	Use proper mixing device; check proportioning precision by spiking one solvent with UV absorbing compound and monitor UV absorbance detector output.
	Gradient or isocratic proportioning - malfunctioning proportioning valves	Clean or replace proportioning precision valves; partially remix solvents.
	Occasional sharp spikes - external electrical interference	Use voltage stabilizer for LC system; use independent electrical circuit.
	Periodic - pump pulses	Service or replace pulse damper; purge air from pump; clean or replace check valves.
	Random - contamination buildup	Flush column with strong solvent; clean up sample; use HPLC grade solvent
	Spikes - bubble in detector	Degas mobile phase; use back pressure restrictor at detector outlet.
	Spikes - column temperature higher than boiling point of solvent	Use lower column temperature.



Common Troubleshooting

Problem	Possible cause	Solution
Decreasing Pressure	Insufficient flow from pump	Loosen cap on mobile phase reservoir
	Leak in hydraulic lines from pump to column	Tighten or replace fittings; tighten rotor in injection valve
	Leaking pump check valve or seals	Replace or clean check valves; replace pump seals.
	Pump cavitation	Degas solvent; check for obstruction in line from solvent reservoir to pump; replace inlet-line frit
Fluctuating pressure	Bubble in pump	Degas solvent; purge solvent with helium
	Leaking pump check valve or seals	Replace or clean check valves; replace pump seals
High Back Pressure	Column blocked with irreversibly adsorbed sample	Improve sample cleanup; use guard column; reverse-flush column with strong solvent to dissolve blockage
	"Column particle size too small (for example 3 micrometers)"	Use larger particle size (for example 5 micrometer)
	Microbial growth on column	"Use at least 10% organic modifier in mobile phase; use fresh buffer daily; add 0.02% sodium azide to aqueous mobile phase; store column in at least 25% organic solvent without buffer"
	Mobile phase viscosity too high	Use lower viscosity solvents or higher temperature
	Plugged frit in in-line filter or guard column	Replace frit or guard column
	Plugged inlet frit	Replace endfritting or frit assembly
	Polymetric columns - solvent change causes swelling of packing	Use correct solvent with column; change to proper solvent composition; consult manufacturer's solvent-compatibility chart; use a column with a higher percentage of cross-linking
	Salt precipitation (especially in reversed-phase chromatography with high concentration of organic solvent in mobile phase) concentration of organic solvent in mobile phase)	Ensure mobile phase compatibility with buffer concentration; decrease ionic strength and water-organic solvent ratio; premix mobile phase
Increasing Pressure	When injector disconnected from column - blockage in injector	Clean injector or replace rotor
	Blocked flow lines	Systematically disconnect components from detector end to column end to find blockage; replace or clean blocked component
	Particulate buildup at head of column	"Filter sample; use .5 micrometer in-line filter; disconnect and backflush column; replace inlet frit"
Broad peaks	Water-organic solvent systems - buffer precipitation	"Ensure mobile phase compatibility with buffer concentration; decrease ionic strength or water organic solvent ratio"
	Analytes eluted early due to sample overload	Dilute sample 1:10 and reinject
	Detector-cell volume too large	Use smallest possible cell volume consistent with sensitivity needs; use detector with no heat exchanger in system
	Injection volume too large	Decrease solvent strength of injection solvent to focus solute; inject smaller volume
	Large extra column volume	Use low- or zero-dead-volume endfittings and connectors; use smallest possible diameter of connecting tubing (<0.10 in. i.d.); connect tubing with matched fittings
	Mobile-phase solvent viscosity too high	Increase column temperature; change to lower viscosity solvent
	Peak dispersion in injector valve	Decrease injector sample loop size; introduce air bubble in front and back of sample in loop
	Poor column efficiency	Use smaller-particle-diameter packing, lower-viscosity mobile phase, higher column temperature, or lower flow rate
	Retention time too long	Use gradient elution or stronger isocratic mobile phase
	Sampling rate of data system too low	Increase sampling frequency.
Ghost peaks	Slow detector time constant	Adjust time constant to match peak width
	Some peaks broad - late elution of analytes retained from previous injection	Flush column with strong solvent at end of run; end gradient at higher solvent concentration
	Contamination	Flush column to remove contaminant; use HPLC-grade solvent
	Elution of analytes retained from previous injection	Flush column with strong solvent at end of run; end gradient at higher solvent concentration
	Ion-pair chromatography - upset equilibrium	Prepare sample in mobile phase; reduce injection volume
	Oxidation of trifluoroacetic acid in peptide mapping	Prepare trifluoroacetic acid solutions fresh daily; use antioxidant
Negative peaks	Reversed-phase chromatography - contaminated water	Check suitability of water by running different amounts through column and measure peak height of interferences as function of enrichment time; clean water by running it through old reversed-phase column; use HPLC-grade water.
	Unknown interferences in sample	Use sample cleanup or prefractionation before injection.
	Refractive index detection - refractive index of solute less than that of mobile phase	Reverse polarity to make peak positive
Negative peaks	UV-absorbance detection - absorbance of solute less than that of mobile phase	Use mobile phase with lower UV absorbance; if recycling solvent, stop recycling when recycled solvent affects detection

Problem	Possible cause	Solution
Peak Doubling	Blocked Frit	Replace or clean frit; install 0.5-um porosity in-line filter between pump and injector to eliminate mobile-phase contaminants or between injector and column to eliminate sample contaminants
	Coelution of interfering compound	Use sample cleanup or prefractionation; adjust selectivity by changing mobile or stationary phase
	"Coelution of interfering compound from previous injection"	Flush column with strong solvent at end of run; end gradient at higher solvent concentration
	Column overloaded	Use higher-capacity stationary phase; increase column diameter; decrease sample amount
	Column void or channeling	Replace column, or, if possible, open top endfiting and clean and fill void with glass beads or same column packing; repack column
	Injection solvent too strong	Use weaker injection solvent or stronger mobile phase
	Sample volume too large	Use injection volume equal to one-sixth of column volume when sample prepared in mobile phase for injection
	Unswept injector flow path	Replace injector rotor
Peak Fronting	Channeling in column	Replace or repack column
	Column overloaded	Use higher-capacity stationary phase; increase column diameter; decrease sample amount
Tailing Peaks	Basic solutes - silanol interactions	Use competing base such as triethylamine; use a stronger mobile phase; use base-deactivated silica-based reversed-phase column; use polymeric column
	Beginning of peak doubling	See peak doubling
	Chelating solutes - trace metals in base silica	Use high purity silica-based column with low trace-metal content; add EDTA or chelating compound to mobile phase; use polymeric column
	Silica-based column - degradation at high pH	Use polymeric, sterically protected, or high-coverage reversed-phase column; install silica gel saturator column between pump and injector
	Silica-based column - degradation at high temperature	Reduce temperature to less than 50°C
	Silica-based column - silanol interactions	Decrease mobile-phase pH to suppress silanol ionization; increase buffer concentration; derivatize solute to change polar interactions
	Unswept dead volume	Minimize number of connections; ensure injector rotor seal is tight; ensure all compression fittings are correctly seated
	Void formation at head of column	Replace column, or, if possible, open top end fitting and clean and fill in void with glass beads or same column packing; rotate injection valve quickly; use injection valve with pressure bypass; avoid pressure shock
Spikes	Bubbles in mobile phase	Degas mobile phase; use back-pressure restrictor at detector outlet; ensure that all fittings are tight
	Column stored without caps	Store column tightly capped; flush reversed-phase columns with degassed methanol



Correspond with other brand columns

Column	Supelco	Kromasil	Agilent	GL
C18-WP	Discovery RP-Amide C16		ZORBAX Rx C18	Inertsil ODS-EP
C18	SUPELCOSIL LC-18 Discovery C18	Kromasil C-18	ZORBAX Eclipse XDB-C18	Inertsil ODS-2
C18-BIO	Discovery BIO Wide Pore C18	Kromasil 300A C-18	ZORBAX 300SB-C18	Inertsil WP300 c18
C8	DISCOVERY C8	Kromasil C-8	ZORBAX Eclipse XDB-C8	Inertsil C8
C4		Kromasil C4		Inertsil C4
Phenyl	SUPELCOSIL LC-DP	Kromasil Phenyl	ZORBAX Eclipse XDBPhenyl	
Silica	SUPELCOSIL LC-Si	Kromasil SIL	ZORBAX Silica	Inertsil Sil
NH2	SUPELCOSIL LC-NH2	Kromasil NH2	ZORBAX NH2	Inertsil NH2
CN	SUPELCOSIL LC-CN	Kromasil CN	ZORBAX Eclipse XDB-CN	Inertsil CN-3

Column	Merck	Waters	Thermo
C18-WP		SymmetryShield C18	
C18	Puorsher STAR RP-18 endcapped	Symmetry C18	Hypersil ODS C18
C18-BIO	Lichrospher wp 300 RP-18e	Symmetry 300	Hypersil 300A C18
C8	Purospher STAR RP-8 endcapped	Symmetry C8	Hypersil C8
C4		Spherisorb® C4	Hypersil GOLD C4
Phenyl		Spherisorb® Phenyl	Hypersil Phenyl-2
Silica	Lichrospher si 100	Spherisorb® W(Silica)	Hypersil Silica
NH2	Purospher STAR NH2	Spherisorb® NH2	Hypersil NH2
CN	Lichrospher CN	Spherisorb® CN	Hypersil CN (CPS-2)

The USP liquid phase column summary

USP is United States Pharmacopoeia, provides a number of indicators for HPLC column packing:

USP	Packing Description	Recommence HPLC columns
L1	Octadecyl silane chemically bonded to porous silica or ceramic particles, 1.5 to 10µm in diameter, or a monolithic rod	C18, C18-WP, C18-BIO
L2	Octadecyl silane chemically bonded to silica gel of a controlled surface porosity that has been bonded to a solid spherical core, 30 to 50µm in diameter	C18 Packing
L3	Porous silica microparticles, 5 to 10µm in diameter	Silica
L4	Silica gel of controlled surface porosity bonded to a solid spherical core, 30 to 50µm in diameter	Silicycle packing
L7	Octyl silane chemically bonded to totally porous microsilica particles, 3 to 10µm in diameter	C8
L8	An essentially monomolecular layer of aminopropyl-silane chemically bonded to totally porous silica gel support, 10µm in diameter	NH2
L9	Irregular or spherical, totally porous silica gel having a chemically bonded, strongly acidic anion-exchange coating, 3 to 10 µm in diameter	SCX
L10	Nitrile groups chemically bonded to porous silica microparticles, 3 to 10µm in diameter	CN, Shodex Silica 5CN
L11	Phenyl groups chemically bonded to porous silica microparticles, 3 to 10µm in diameter	Phenyl, Shodex Silica 5NPE
L12	Strong anion-exchange packing made by chemically bonding a quaternary amine to a solid silica spherical core, 30 to 50 µm in diameter"	
L13	Trimethylsilane chemically bonded to porous silica microparticles, 3 to 10µm in diameter	Shodex Silica 5TMS
L14	Silica gel having a chemically bonded, strongly basic quaternary ammonium anion-exchange coating, 5 to 10 µm in diameter.	SAX
L15	Hexyl silane chemically bonded to totally porous silica particles, 3 to 10µm in diameter	Spherisorb S5 C6
L16	Dimethyl silane chemically bonded to totally porous silica particles, 5 to 10 µm in diameter	
L17	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form, 7 to 11µm in diameter	Sep H-L, H-M, H-H
L18	Dimethyl silane chemically bonded to totally porous silica particles, 5 to 10 µm in diameter	
L19	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the calcium form, 9µm in diameter.	Sep Ca-L, Ca-M, Ca-H
L20	Dihydroxypropane groups chemically bonded to porous silica particles, 3 to 10µm in diameter.	Shodex PROTEIN KW-800
L21	A rigid, spherical styrene-divinylbenzene copolymer, 5 to 10µm in diameter.	Transgenomic PRX-1, Shodex GPC KF-800, K-800, KD-800
L22	A cation exchange resin made of porous polystyrene gel with sulfonic acid groups, about 10µm in size	Shodex ICY-521, SUGAR KS-800 series
L23	An ion exchange resin made of porous polymethacrylate or polyacrylate gel with quaternary ammonium groups, about 10µm in size	Shodex IEC QA-825
L24	A semi-rigid hydrophilic gel consisting of vinyl polymers with numerous hydroxyl groups on the matrix surface, 32 to 63 µm in diameter	
L25	Packing having the capacity to separate compounds with a MW range from 100 to 5000 daltons (as determined by polyethylene oxide), applied to neutral, anionic, and cationic water-soluble polymers. A polymethacrylate resin base, crosslinked with poly-hydroxylated ether (surface contained some residual carboxyl functional groups) was found suitable.	Shodex OHpak SB-802 HQ, Shodex OHpak SB-802.5 HQ, SB402.5
L26	Butyl silane chemically bonded to totally porous silica particles, 5 to 10µm in diameter	C4
L27	Porous silica particles, 30 to 50µm in diameter	Silicycle packing
L28	A multifunctional support, which consists of a high purity, 100, spherical silica substrate that has been bonded with anionic (amine) functionality in addition to a conventional reversed phase C8 functionality"	
L29	Gamma alumina, reversed phase, low carbon percentage by weight, alumina-based polybutadiene spherical particles, 5 µm diameter with a pore diameter of 80"	
L30	Ethyl silane chemically bonded to a totally porous silica particle, 3 to 10 µm in diameter	
L31	A strong anion-exchange resin-quaternary amine bonded on latex particles attached to a core of 8.5 µm macroporous particles having a pore size of 2000 Å and consisting of ethylvinylbenzene cross-linked with 55 % divinyl benzene	
L32	A chiral ligand-exchange packing- L-proline copper complex covalently bonded to irregularly shaped silica particles, 5 to 10 µm in diameter	
L33	Packing having the capacity to separate proteins of 4,000 to 400,000 daltons. It is spherical, silica-based and processed to provide pH stability	Shodex PROTEIN KW-800 series, Shodex KW400 series
L34	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the lead form, about 9µm in diameter	Sep Pb-L, Pb-M, Pb-H
L35	A zirconium-stabilized spherical silica packing with a hydrophilic (diol-type) molecular monolayer bonded phase having a pore size of 150Å.	Agilent Zorbax GF-250
L36	3,5-dinitrobenzoyl derivative of L-phenylglycine covalently bonded to 5 µm aminopropyl silica	
L37	Packing having the capacity to separate proteins by molecular size over a range of 2,000 to 40,000 Da. It is a polymethacrylate gel	Shodex OHpak SB-803 HQ, SB403
L38	Methacrylate-based size-exclusion packing for water-soluble samples	Shodex OHpak SB-802HQ
L39	Hydrophilic polyhydroxymethacrylate gel of totally porous spherical resin	Shodex OHpak SB-800HQ, Shodex Rspak DM-614
L40	Cellulose tri-3,5-dimethylphenylcarbamate coated porous silica particles, 5µm to 20µm in diameter	Regis Cell [®]
L41	Immobilized 1-acid glycoprotein on spherical silica particles	
L42	Octylsilane and octadecylsilane groups chemically bonded to porous silica particles, 5 µm in diameter	
L43	Pentafluorophenyl groups chemically bonded to silica particles, 5 to 10 µm in diameter (5-10µm)	Supelco Discovery HSF5
L44	A multifunctional support, which consists of a high purity, 60, spherical silica substrate that has been bonded with a cationic exchanger, sulfonic acid functionality in addition to a conventional reversed phase C8 functionality.	
L45	Beta cyclodextrin bonded to porous silica particles, 5 to 10 µm in diameter	Shodex ORpak CDBS-453

USP	Packing Description	Recommence HPLC columns
L46	Polystyrene/divinylbenzene substrate agglomerated with quaternary amine functionalized latex beads, 10 µm in diameter.	
L47	High capacity anion-exchange microporous substrate, fully functionalized with a trimethylamine group, 8 µm in diameter.	
L48	Sulfonated, cross-linked polystyrene with an outer layer of submicron, porous, anion-exchange microbeads, 15 µm in diameter.	
L49	A reversed-phase packing made by coating a thin layer of polybutadiene on to spherical porous zirconia particles, 3 to 10 µm in diameter.	Discovery Zr-PBD
L50	Multifunction resin with reversed-phase retention and strong anion-exchange functionalities. The resin consists of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 3 to 15 µm in diameter, and a surface area of not less than 350 m ² /g, substrate is coated with quaternary ammonium functionalized latex particles consisting of styrene cross-linked with divinylbenzene.	
L51	Amylose tris-3,5-dimethylphenylcarbamate-coated, porous, spherical, silica particles, 5 to 10 µm in diameter.	®
L52	A strong cation exchange resin made of porous silica with sulfopropyl groups, 5 to 10 µm in diameter.	SCX
L53	Weak cation-exchange resin consisting of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 3 to 15 µm diameter. Substrate is surface grafted with carboxylic acid and/or phosphoric acid functionalized monomers. Capacity not less than 500 µm in diameter.	
L54	"A size exclusion medium made of covalent bonding of dextran to highly cross-linked porous agarose beads, about 13 µm in diameter."	
L55	A strong cation exchange resin made of porous silica coated with polybutadiene-maleic acid copolymer, about 5 µm in diameter.	
L56	Isopropyl silane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter	
L57	A chiral-recognition protein, ovomucoid, chemically bonded to silica particles, about 5 µm in diameter, with a pore size of 120 angstroms.	
L58	Strong cation-exchange resin consisting of sulphonated cross-linked styrene-divinylbenzene copolymer in the sodium form, about 7 to 11 µm diameter	Sep Na-L, Na-M, Na-H, Transgenomic Coregel 87N
L59	Packing having the capacity to separate proteins by molecular weight over the range of 10 to 500kDa. It is spherical(10µm), silica-based, and processed to provide hydrophilic characteristics and pH stability	Shodex PROTEIN KW-800 series, Shodex KW400 series
L60	Spherical, porous silica gel, 3 to 10 µm in diameter, surface has been covalently modified with palmitamidopropyl groups and endcapped.	C18-WP
L61	Hydroxide-selective, strong anion-exchange resin consisting of a highly cross-linked core of 13 µm microporous particles, pore size less than 10 , and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene with a latex coating composed of 85 nm diameter microbeads bonded with alkanol quaternary ammonium ions (6 %).	
L62	C30 silane bonded phase on a fully porous spherical silica, 3 to 15 µm in diameter.	C30
L63	Glycopeptide teicoplanin linked through multiple covalent bonds to a 100 Å units spherical silica	
L64	Strongly basic anion exchange resin consisting of 8% crosslinked styrene divinylbenzene copolymer with a quaternary ammonium group in the chloride form, 45 to 180 µm in diameter	
L65	Strongly acidic cation exchange resin consisting of 8% sulfonated crosslinked styrene divinylbenzene copolymer with a sulfonic acid group in the hydrogen form, 63 to 250 µm in diameter	
L66	A crown ether coated on a 5 µm particle size silica gel substrate. The active site is (S)-18-crown-6 ether	
L67	Porous vinyl alcohol copolymer with a C18 alkyl group attached to the hydroxyl group of the polymer, 2 to 10 µm in diameter	Shodex Asahipak ODP-40 Shodex ET-RP1
L68	Spherical, porous silica, 10 µm or less in diameter, the surface of which has been covalently modified with alkyl amide groups and not endcapped	
L69	Ethylvinylbenzene/divinylbenzene substrate agglomerated with quaternary amine functionalized 130nm latex beads, about 6.5 µm in diameter	
L70	Cellulose tris(phenyl carbamate) coated on 5 µm silica	
L71	Arigid, spherical polymetacrylate, 4 to 6 µm in diameter	Shodex RSpak DE-613
L72	(S)-phenylglycine and 3,5-dinitroaniline urea linkage covalently bonded to silica	
L73	A rigid, spherical polydivinylbenzene particle, 5 to 10 µm in diameter	
L74	A strong anion-exchange resin consisting of a highly cross-linked core of 7-µm macroporous particles having a 100 Angstroms average pore size and consisting of ethylvinylbenzene cross-linked with 55% divinylbenzene and an anion-exchange layer grafted to the surface, which is functionalized with alkyl quaternary ammonium ions.	
L75	A chiral-recognition protein, bovine serum albumin (BSA), chemically bonded to silica particles, about 7 µm in diameter, with a pore size of 300 Angstroms.	

Pressure unit conversion table

1atm = 1.01325bar

UNIT	Pa	KPa	MPa	bar	kgf/cm ²	mmH ₂ O	mmHg	p.s.i
Pa	1	10 ⁻³	10 ⁻⁶	10 ⁻⁵	10.2×10 ⁻⁶	101.97×10 ⁻³	7.5×10 ⁻³	0.15×10 ⁻³
KPa	10 ³	1	10 ⁻³	10 ⁻²	10.2×10 ⁻³	101.97	7.5	0.15
MPa	10 ⁶	10 ³	1	10	10.2	101.97×10 ³	7.5×10 ³	0.15×10 ³
bar	10 ⁵	10 ²	10 ⁻¹	1	1.02	10.2×10 ³	750.06	14.5
kgf/cm ²	98066.5	98.07	98.07×10 ⁻³	0.98	1	10.000	735.56	14.22
mmH ₂ O	9.806	9.807×10 ⁻³	9.807×10 ⁻⁶	98.07×10 ⁻⁶	10 ⁻⁴	1	73.56×10 ⁻³	1.42×10 ⁻³
mmHg	133.32	133.32×10 ⁻³	133.32×10 ⁻⁶	1.33×10 ⁻³	1.36×10 ⁻³	13.6	1	19.34×10 ⁻³
p.s.i	6894.76	6.89	6.89×10 ⁻³	68.95×10 ⁻³	70.31×10 ⁻³	703.07	51.71	1

Pressure unit conversion table

Solvent ①②	UV wavelength nm ③	Refractive index ④	Boiling point °C	Viscosity (cp 25 °C)	Polarity	Solubility ⑤	Dielectric constant 20 °C
Isooctane (*)	210	1.389	99	0.47	0.1	0.01	1.94
N-heptane (*)	200	1.385	98	0.4	0.2	0.01	1.92
N-hexane (*)	190	1.372	69	0.3	0.1	0.01	1.88
N-pentane (**)	210	1.355	36	0.22	0	0.01	1.84
Cyclohexane	210	1.423	81	0.9	0.1	0.012	2.02
Cyclopentane (*)	210	1.404	49	0.42	0.2	0.004	1.97
Carbon tetrachloride	265	1.457	77	0.9	1.6	0.008	2.24
Toluene	285	1.494	110	0.55	2.4	0.046	2.4
Xylene	290	1.493	138	0.6	2.5	unknown	2.3
Chlorobenzene	unknown	1.521	132	0.75	2.7	unknown	5.6
Benzene	280	1.498	80	0.6	2.7	0.07	2.3
Dichloromethane (**)	245	1.421	40	0.41	3.1	1.6	8.9
N-butanol	210	1.397	118	2.98	3.9	7.81	17.5
N-propanol	210	1.385	97	2.27	4	Miscible	20.3
Tetrahydrofuran(*)	220	1.405	66	0.55	4	Miscible	7.4
Ethyl acetate (*)	256	1.37	77	0.43	4.4	8.7	6.4
Isopropanol	210	1.384	82	2.3	4.3	Miscible	18.3
Chloroform (*)	245	1.443	61	0.53	4.1	0.815	4.8
Acetone (*)	330	1.356	56	0.3	5.4	Miscible	21.4
Ethanol	210	1.359	78	1.08	4.3	Miscible	24.6
Acetic acid	230	1.37	118	1.26	6	Miscible	6.2
Acetonitrile	210	1.341	82	0.34	6.2	Miscible	37.5
Methanol (*)	210	1.326	65	0.54	6.6	Miscible	32.7
Glycol	unknown	1.431	197	19.9	6.9	Miscible	37.7
Water	268	1.338	100	1	10.2	Miscible	80

① (*) means a low viscosity (<0.5cp), boiling point appropriate in (> 45 °C)

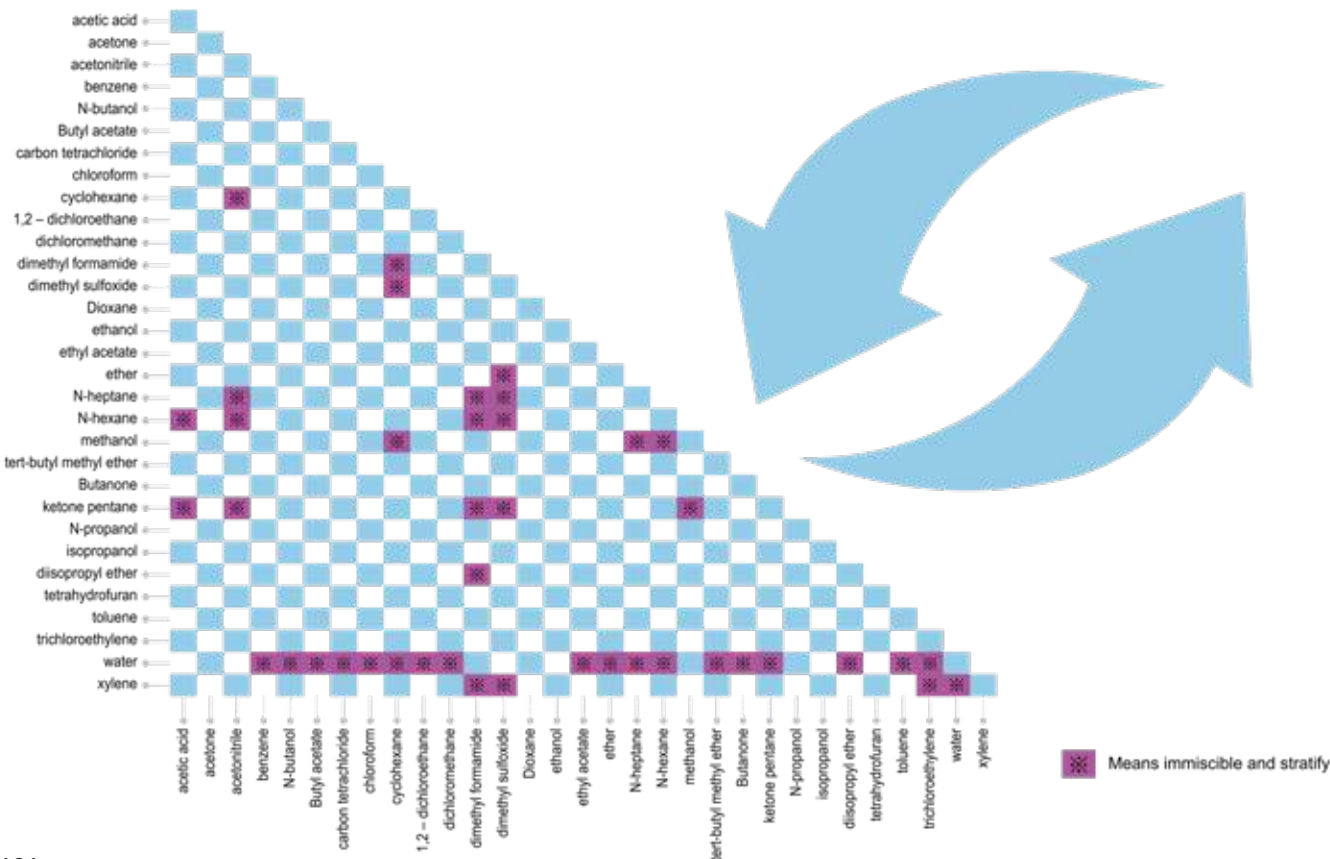
② (**) means small viscosity, low boiling point solvent.

③ Means approximate cutoff wavelength,when lower than this value, solvent is opaque.

④ Refractive index when 25 °C .

⑤ Percentage by weight of water at 20 °C when dissolved in a solvent, this value is useful in the liquid - solid chromatography.

Solvent miscibility



Application Index

Melamine in Milk Powder (according to GB/T 22388-2008)	125	VitB6	155	Malachite green and crystal violet aquatic ..	165
Tricyclic antidepressants	126	Coenzyme Q	155	Nitroaniline	165
Purine alkaloid	126	Psoralen	155	Polycyclic aromatic hydrocarbons (PAHs) (HJ 478- 2009)	166
Oligonucleotide	127	Loganin	155	Tetracyclines	166
Anti-HIV drugs	127	Paeonol	156	Watery nonvolatile pesticides	166
Tricyclic antidepressants	128	Cefixime	156	Bisphenol A	166
SulfaNo	128	Clarithromycin	156	Leather's phthalates	167
Hydrolysis bovine serum albumin	129	Paeoniflorin	156	Parabens in cosmetics	167
O-phthalic monoester acid	129	Carbamazepine	157	Phthalate monoester	167
Fat-soluble vitamins	132	Acetylacetone	157	Bromopyrene-C8	167
Steroid	132	Domiphen bromide	157	Nucleoside -1	168
Carbohydrates	133	Methotrexate	157	Oligonucleotide	168
Tocopherol isomers	133	Water-soluble vitamins	158	Nucleoside	168
Melamine	136	Fat-soluble vitamins	158	Protein Separation	168
Protein separation	139	Vitamin B	158	Hydrolysis of bovine serum albumin	169
Sorbitol and Mannitol	140	Citrus red No. 2 in juice	158	Synthetic peptide	169
Comparison of different columns for separation of protein samples	145	Carbohydrate -1	159	Protein sample	169
protein molecular weight calibration curve	145	Carbohydrate -2	159		
Tricyclic antidepressant	149	Carbohydrate -3	159		
Beta-blockers	149	Isomaltooligosaccharide	159		
Cough and cold medicine ingredients	149	Melamine	160		
Procainamide	149	Melamine in Milk Powder	160		
Anticholinergics	150	Melamine in raw milk (according to GB / T 22400-2008)	160		
Non-steroidal anti-inflammatory drugs ...	150	Furosine	160		
Glycyrrhizi	150	Vanillin and ethyl vanillin	161		
Matrine	150	Tocopherol isomers	161		
Anti-HIV drugs	151	Tocopherol isomers	161		
Tricyclic antidepressants	151	Tocopherol	161		
Steroids -1	151	Benzoic acid, sorbic acid	162		
Steroids -2	151	Sorbitol and mannitol	162		
Doxepin Hydrochloride	152	Sudan in chili sauce	162		
Cefotaxime valerate	152	Synthetic colorants	162		
Deoxyschizandrin schisandrin B	152	Carbamate pesticide in pepper	163		
Calcium pantothenate	152	Fungicides	163		
Cefuroxime Sodium	153	Glyphosate	163		
Taurine	153	Clethodim	163		
Rifampicin and related substances	153	Quinolones	164		
Melatonin	153	Sulfa	164		
Day ephedra	154	Sulfa drugs in feed	164		
Berberine	154	Clenbuterol	164		
Aspirin C in propolis	154	Fluoroquinolones	165		
Nicotinamide	154	Norfloxacin	165		



Brief introduction

Currently, HPLC is widely used in the chemical, biological and pharmaceutical field. GVS three HPLC series include silica and polymer matrix columns, both analysis and preparative columns, to meet needs of customers in various fields.

Silica-based analytical column

HPLC columns

The Columns base on high-purity silica gel, using unique bonding technique, with excellent peak shape, better selectivity, sensitivity and reproducibility. With low content of matrix metal, the columns show perfect peak shape for all types of analytes. Different types of bonded phases provide more flexibility for method development. To ensure excellent column performance and long column life, we comply with strict production process in manufacturing and have a strict quality control for HPLC columns.



- A Suitable for all types of samples
- A Excellent column reproducibility
- A A variety of bonded phases

The packings information:

Packings	C18-WP	C18	C18-BIO	C8	C4	Phenyl	CN	Diol
Particle diameter (μm)	3 and 5	5 and 10	5	3 and 5	5	5	3 and 5	3 and 5
Pore size(Å)	100	120	300	120	300	120	120	120
Pore volume (mL/g)	1.1	1.0	0.9	1.0	0.9	1.0	1.0	1.0
Endcapped	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Specific surface area(m ² /g)	450	300	100	300	100	300	300	300
Metallic impurities (ppm)	<10	<10	<10	<10	<10	<10	<10	<10
Carbon content	17%	17%	8%	10%	3%	11%	7.5%	8.8%
pH range	1.5 - 10	2 - 8	1.5 - 11	2 - 8	2 - 8	2 - 8	2.5 - 8	2.5 - 8
Temperature range (°C)	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60

Packings	NH ₂	Silica	SAX	SCX	HILIC	HILIC(2)	HILIC(3)	30
Particle diameter (μm)	3 and 5	3 and 5	3 and 5	3 and 5	3 and 5	3 and 5	5	3 and 5
Pore size(Å)	120	120	120	120	120	120	120	120
Pore volume (mL/g)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Specific surface area(m ² /g)	300	300	300	300	300	300	300	450
Metallic impurities (ppm)	<10	<10	<10	<10	<10	<10	<10	<10
Carbon content	4%	0%	16%	11%	8.6%	8%	16%	20%
pH range	2 - 8	2 - 8	2 - 8	2 - 8	1.5 - 8	1.5 - 8	1.5 - 8	2 - 8
Temperature range (°C)	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60	20 - 60

C18-WP

[Recommended for Method Development, fit for a variety of mobile phase conditions]

C18-WP use high purity of spherical silica matrix and have excellent stability. C18-WP can use 100% pure water as mobile phase for separation of acidic, neutral and basic organic compound, as well as many drugs and peptides etc. A variety of specifications, from analytical to preparative scale can be provided.

A Bonded C18 groups

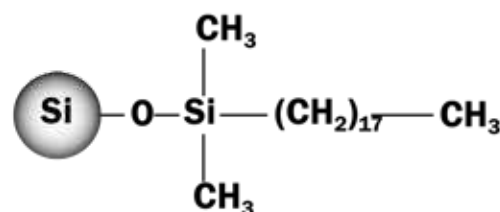
A pH stability range: 1.5-10

A Suitable for 100% water mobile phase

A Strong retain for polar substances

A Symmetrical peak shape for Alkaline substances

A High specific surface area, suitable for high load



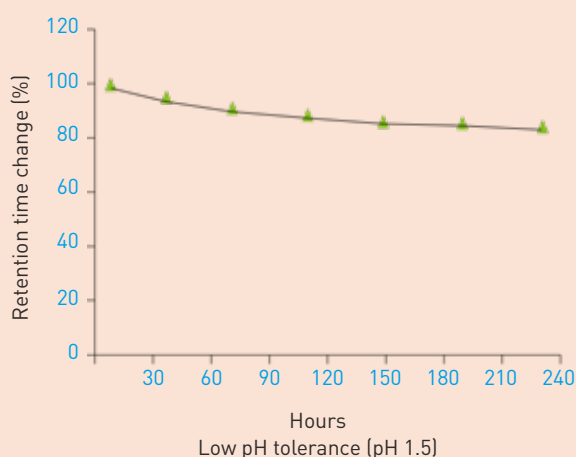
PH stability

Stability of low pH

In the low pH mobile phase, the main reason for short column life is drop of chemical bonded group from silica gel by hydrolysis. Hydrolysis leads to changing retention time of the analyte, short lifetime and poor reproducibility. The following figure shows C18-WP stability under the conditions of pH 1.5 mobile phase.

Low pH tolerance (pH 1.5)

Column	C18-WP, 4.6 x 150 mm, 5μm
Mobile phase	Acetonitrile: 0.1% trifluoroacetic acid (pH 1.5) (50/50)
Flow rate	1.0 mL / min
Detection	UV 254 nm
Column temperature	30 ° C
Sample	toluene

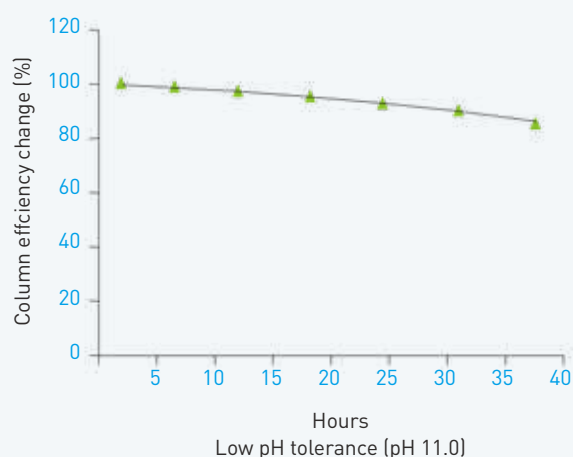


Stability of high pH

In the high pH mobile phase, silica matrix is gradually dissolved. Ordinary pH range of silica-based columns is 2-8. When the pH of mobile phase is more than 8, silica gel is dissolved speedily, and column life is very short. C18-WP columns can protect silica matrix to have a longer life in high pH conditions, due to unique bonding and endcapped technology.

High pH tolerance (pH 11.0)

Column	C18-WP, 4.6 x 150 mm, 5μm
Mobile phase	Methanol: 0.5% aqueous ammonia (pH 11.0) (20/80)
Flow rate	1.0 mL / min
Detection	UV 254 nm
Column temperature	30 ° C
Sample	Phthalatedipropyl



100% stability of the aqueous phase

Usually silica-based reversed-phase column can not be used in high proportion of water mobile phase conditions, and organic phase in the mobile phase must be maintained more than 5%. This may limit some polar compounds' separation in reversed-phase conditions. The reason is hydrophobic collapse.

"Hydrophobic collapse" is a phenomenon that reversed-phase column loss the ability of retaining compounds in a mobile phase with a very high water content. Due to the hydrophobic interaction of functional groups, the surface of the stationary phase cannot be wet by the mobile phase and hydrophobic chains fold up.

According to the research, the hydrophobic collapse generally occurs when restarting of the mobile phase after stopping pump. The experiment can verify whether a column is compatible with pure water. Test column efficiency at first, and wash the column with 100% water mobile phase at 1.0 mL/min for 2h. Then slow down the flow rate to zero and stop pump for 1h. Columns are washed with 100% water mobile phase again and tested for column efficiency the second time.

Compare the difference of retention before and after stopping pump.

Test Condition

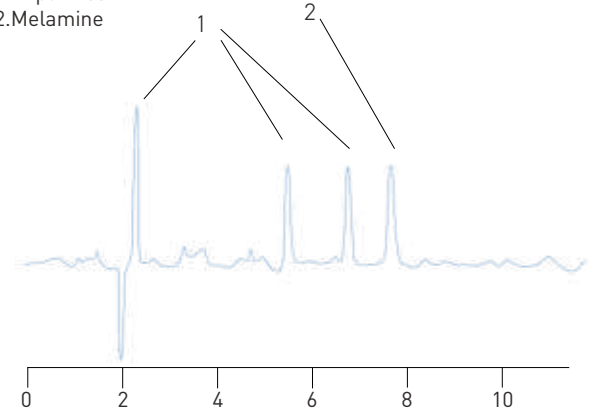
Column	C18-WP, 4.6 x 150 mm, 5µm
Mobile phase	methanol: water (70/30)
Flow rate	1.0 mL / min
Detection	UV 254 nm
Column temperature	30 °C
Sample	1. Uracil 2. Toluene 3. Naphthalene



Melamine in Milk Powder (according to GB/T22388-2008)

No.03215

1. Impurities in Milk
2. Melamine



Column: C18-WP 4.6 x 150mm, 5µm (HCA050U046X15072A)
Mobile phase: 10 mM hexane sulfonate + 10 mM citric acid buffer solution / acetonitrile (90/10)
Flow rate: 1.0 mL/min
Detection: 240 nm
Column temperature: 40 °C

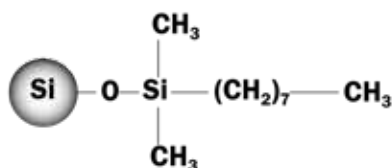
Ordering information

Product Code	Particle size	diameter x length
HCA030U021X05073A	3µm	2.1 x 50mm
HCA030U021X10073A	3µm	2.1 x 100mm
HCA030U021X15073A	3µm	2.1 x 150mm
HCA030U021X20073A	3µm	2.1 x 200mm
HCA030U021X25073A	3µm	2.1 x 250mm
HCA030U046X05073A	3µm	4.6 x 50mm
HCA030U046X10073A	3µm	4.6 x 100mm
HCA030U046X15073A	3µm	4.6 x 150mm
HCA030U046X20073A	3µm	4.6 x 200mm
HCA030U046X25073A	3µm	4.6 x 250mm
HCA050U021X05072A	5µm	2.1 x 50mm
HCA050U021X10072A	5µm	2.1 x 100mm
HCA050U021X15072A	5µm	2.1 x 150mm
HCA050U021X20072A	5µm	2.1 x 200mm
HCA050U021X25072A	5µm	2.1 x 250mm
HCA050U046X05072A	5µm	4.6 x 50mm
HCA050U046X10072A	5µm	4.6 x 100mm
HCA050U046X15072A	5µm	4.6 x 150mm
HCA050U046X20072A	5µm	4.6 x 200mm
HCA050U046X25072A	5µm	4.6 x 250mm

C18

[Conventional C18 column]

- A Bonded C18 groups
- A High-purity silica, metal content <10ppm
- A Less hydrophobic than C18-WP, with different selectivity
- A Economic column

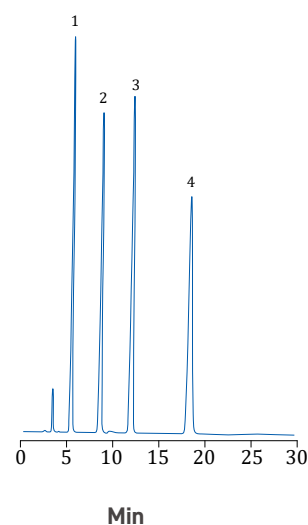


Based on high purity spherical silica, C18 column is good at separating a variety of compounds. It is a typical economic column with high price ratio, as well as long column lifetime. For most analytes, the retention times are shorter than that of C18-WP columns of same specifications.

Purine alkaloid

No.03217

1. Theobromine
2. Theophylline
3. Caffeine
4. Phenol

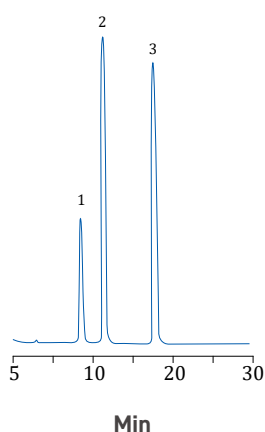


Column: C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
 Mobile phase: methanol / water (25/75)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 40 °C

Tricyclic antidepressants

No.03216

1. Protriptyline
2. Nortriptyline
3. Amitriptyline



Column: C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
 Mobile phase: methanol / 20 mM K₂HPO₄ buffer (pH 7.0) (80/20)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 40 °C

Ordering information

Particle size diameter × length Item No.

Product Code	Particle size	diameter × length
HCA050U021X05071A	5μm	2.1 × 50mm
HCA050U021X10071A	5μm	2.1 × 100mm
HCA050U021X15071A	5μm	2.1 × 150mm
HCA050U021X20071A	5μm	2.1 × 200mm
HCA050U021X25071A	5μm	2.1 × 250mm
HCA050U046X05071A	5μm	4.6 × 50mm
HCA050U046X10071A	5μm	4.6 × 100mm
HCA050U046X15071A	5μm	4.6 × 150mm
HCA050U046X20071A	5μm	4.6 × 200mm
HCA050U046X25071A	5μm	4.6 × 250mm
HCA100U046X15074A	10μm	4.6 × 150mm
HCA100U046X25074A	10μm	4.6 × 250mm

C18-BIO

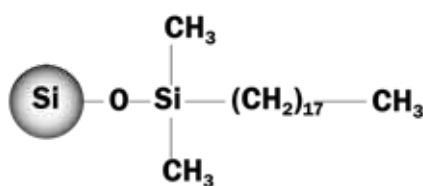
[Applicable to macromolecules]

A Bonded C18 groups

A 300Å pore size, fit for macromolecules separation, such as peptides

A High column efficiency and long lifetime

A Stable in the range of pH 1.5-11



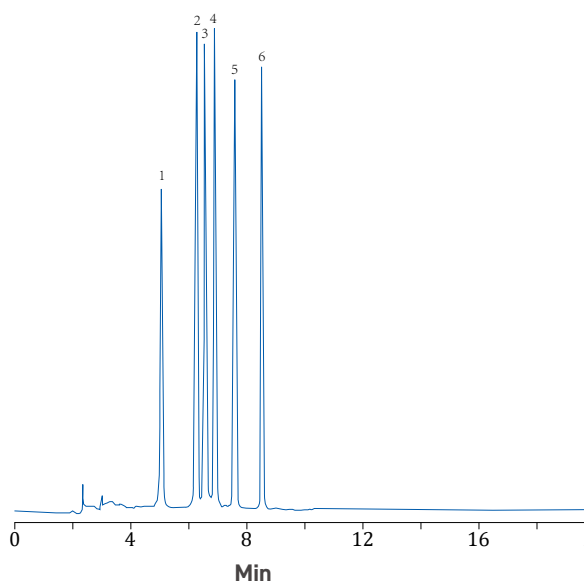
300Å pore size, highpurity silica, high density bonding, and completely endcapped, make C18-BIO able to separate large molecules, especially proteins and polypeptides.

Applications:

Oligonucleotide

No.03218

- | | |
|--------------|--------------|
| 1.CAAGACGCAA | 4.CCCTGAACAA |
| 2.CAACCAACGT | 5.CGTGTATTGG |
| 3.GGTGATCAAC | 6.GGTCCTATAC |

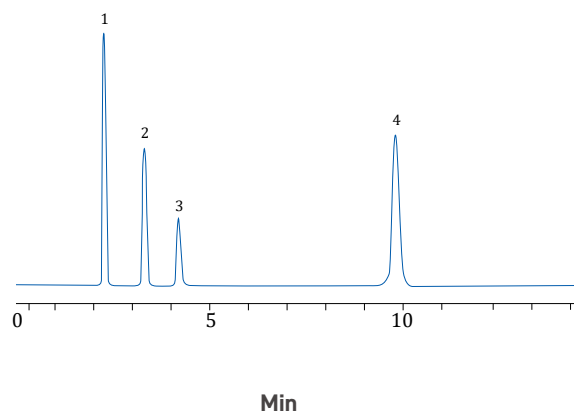


Column: C18-BIO 4.6 × 150mm, 5μm (HCA050U046X15078A)
 Mobile phase: A: 50 mM NaH₂PO₄ buffer solution (pH 7.0); B: acetonitrile 0min B: 5%; 20min B: 15%
 Flow rate: 1.0 mL/min
 Detection: 260 nm
 Column temperature: 25 °C

Anti-HIV drugs

No.03219

- | | |
|----------------|------------|
| 1.Theobromine | 3.Caffeine |
| 2.Theophylline | 4.Phenol |



Column: C18-BIO 4.6 × 150mm, 5μm (HCA050U046X15078A)
 Mobile phase: methanol / 20 mM NH₄H₂PO₄ buffer (10/90)
 Flow rate: 1.0 mL/min
 Detection: 260 nm
 Column temperature: 35 °C

Ordering information

Product Code	Particle size	diameter × length
HCA050U021X05078A	5μm	2.1 × 50mm
HCA050U021X10078A	5μm	2.1 × 100mm
HCA050U021X15078A	5μm	2.1 × 150mm
HCA050U021X20078A	5μm	2.1 × 200mm
HCA050U021X25078A	5μm	2.1 × 250mm
HCA050U046X05078A	5μm	4.6 × 50mm
HCA050U046X10078A	5μm	4.6 × 100mm
HCA050U046X15078A	5μm	4.6 × 150mm
HCA050U046X20078A	5μm	4.6 × 200mm
HCA050U046X25078A	5μm	4.6 × 250mm

C8

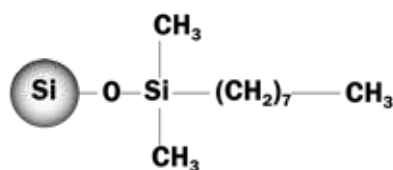
[High resolution, rapid analysis]

A Bonded C8 groups

A Better resolution than C18 group for medium polarity subjects, and short retention time for non-polar compounds

A Good peak shapes for acidic, basic, and neutral substances

A Long column life and good repeatability



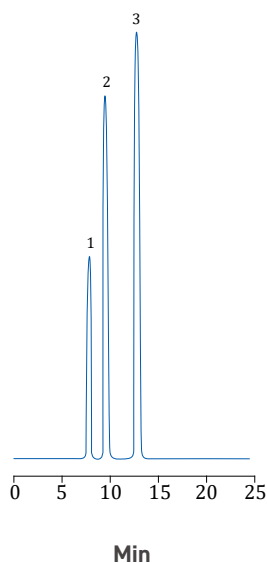
C8 offers less degree of hydrophobic selectivity compared to C18. C8 is a better choice if need to save time and achieve rapid analysis in the same chromatographic condition on octadecyl bonded phase.

Applications

Tricyclic antidepressants

No.03220

1. Protriptyline
2. Nortriptyline
3. Amitriptyline

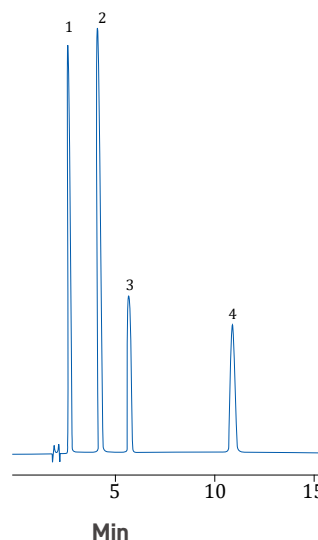


Column: C8 4.6 × 150mm, 5μm (HCA050U046X15075A)
 Mobile phase: methanol / 20 mM K₂HPO₄ buffer (pH 7.0) (80/20)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 40 °C

SulfaNo

No.0322

1. Sulfonamide
2. Sulfisomidine
3. Sulfadiazine
4. Sulfamethazine



Column: C8 4.6 × 150mm, 5μm (HCA050U046X15075A)
 Mobile phase: acetonitrile / 0.1% H₃PO₄ buffer (10/90)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 40 °C

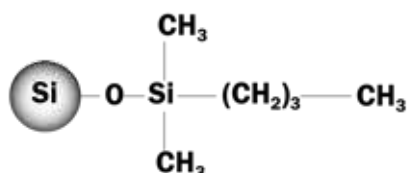
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05065A	3μm	2.1 × 50mm
HCA030U021X10065A	3μm	2.1 × 100mm
HCA030U021X15065A	3μm	2.1 × 150mm
HCA030U021X20065A	3μm	2.1 × 200mm
HCA030U021X25065A	3μm	2.1 × 250mm
HCA030U046X05065A	3μm	4.6 × 50mm
HCA030U046X10065A	3μm	4.6 × 100mm
HCA030U046X15065A	3μm	4.6 × 150mm
HCA030U046X20065A	3μm	4.6 × 200mm
HCA030U046X25065A	3μm	4.6 × 250mm
HCA050U021X05075A	5μm	2.1 × 50mm
HCA050U021X10075A	5μm	2.1 × 100mm
HCA050U021X15075A	5μm	2.1 × 150mm
HCA050U021X20075A	5μm	2.1 × 200mm
HCA050U021X25075A	5μm	2.1 × 250mm
HCA050U046X05075A	5μm	4.6 × 50mm
HCA050U046X10075A	5μm	4.6 × 100mm
HCA050U046X15075A	5μm	4.6 × 150mm
HCA050U046X20075A	5μm	4.6 × 200mm
HCA050U046X25075A	5μm	4.6 × 250mm

C4

[Low hydrophobic reverse phase, rapid analysis]

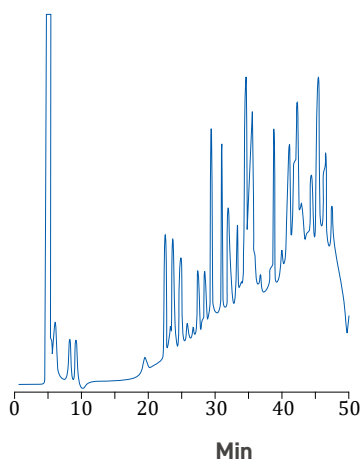
- A Bonded C4 groups
- A 300Å pore size, fit for macromolecules separation
- A Rapid analysis
- A High column efficiency and excellent peak shape



Retention times are shorter than on C8 and C18 phases. 300Å pore size is suitable for analysis of biological samples.

Hydrolysis bovine serum albumin

No.03222



Column: C4 4.6 × 250mm, 5μm (HCA050U046X15079A)
 Mobile phase: A: 0.09% TFA; B: 0.085% TFA + 80% acetonitrile
 0min B 5%; 5min B 5%; 35min B 50%; 45min B 100%
 Flow rate: 1.0 mL/min
 Detection: 214 nm
 Column temperature: 25 °C

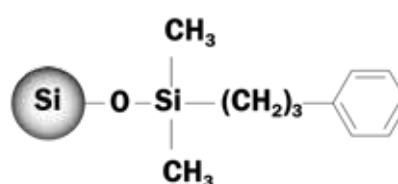
Ordering information

Product Code	Particle size	diameter × length
HCA050U021X05079A	5μm	2.1 × 50mm
HCA050U021X10079A	5μm	2.1 × 100mm
HCA050U021X15079A	5μm	2.1 × 150mm
HCA050U021X20079A	5μm	2.1 × 200mm
HCA050U021X25079A	5μm	2.1 × 250mm
HCA050U046X05079A	5μm	4.6 × 50mm
HCA050U046X10079A	5μm	4.6 × 100mm
HCA050U046X15079A	5μm	4.6 × 150mm
HCA050U046X20079A	5μm	4.6 × 200mm
HCA050U046X25079A	5μm	4.6 × 250mm

Phenyl

[Analysis for compounds with cyclic structure]

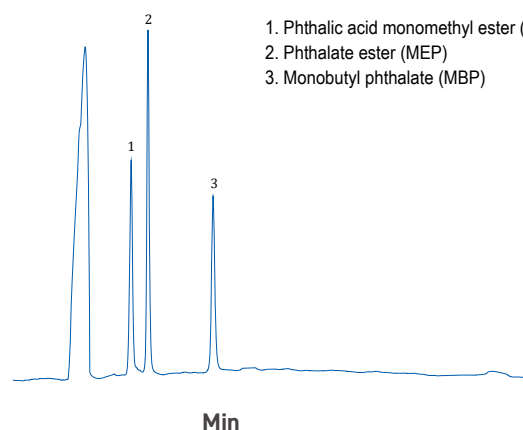
- A Bonded phenylpropyl groups
- A Interactions with π-π of aromatic compound
- A Unique selectivity for compounds with cyclic structure
- A Good reproducibility



Phenyl column bonded phenylpropyl group, with surface coverage is 3.0 μmol/m². Phenyl exhibits a unique selectivity for aromatic compounds, due to a possibility for π-π interactions between the phenyl bonded phase and the solute.

O-phthalic monoester acid

No.03223



Column: Phenyl 4.6 × 150mm, 5μm (HCA050U046X15037A)
 Mobile phase: acetonitrile / water / acetic acid(45/55/0.2)
 Flow rate: 0.8 mL/min
 Detection: 228 nm
 Column temperature: 25 °C

Ordering information

Product Code	Particle size	diameter × length
HCA050U021X05037A	5μm	2.1 × 50mm
HCA050U021X10037A	5μm	2.1 × 100mm
HCA050U021X15037A	5μm	2.1 × 150mm
HCA050U021X25037A	5μm	2.1 × 250mm
HCA050U046X05037A	5μm	4.6 × 50mm
HCA050U046X10037A	5μm	4.6 × 100mm
HCA050U046X15037A	5μm	4.6 × 150mm
HCA050U046X25037A	5μm	4.6 × 250mm

C30

[Applicable to Carotenoid Separation]

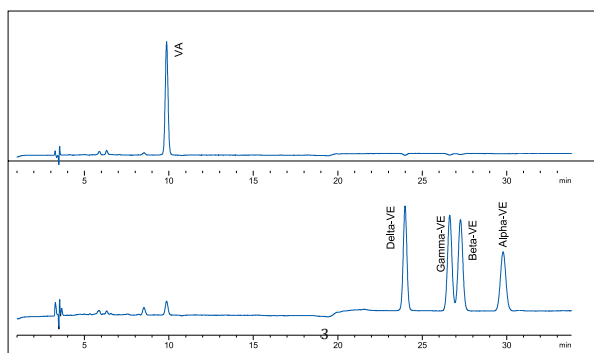
A Unique C30 bonded phase, offering diverse selectivity

A High shape selectivity for structurally similar isomers

C30 is bonded with unique C30 functional groups, suitable for the separation of polar substances (such as sugars and nucleic acids) and lipophilic compounds (such as vitamin E and carotenoids).

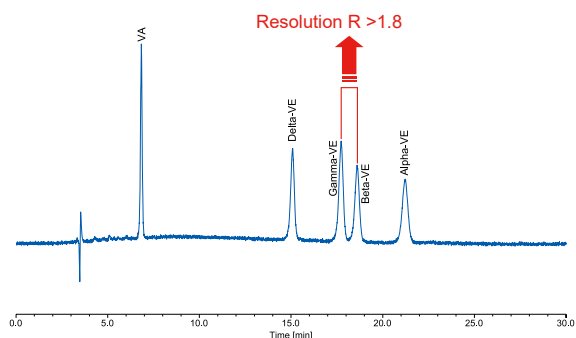
Determination of vitamins A and E

GB5009.82-2016



Column: C30, 4.6 x 250mm, 5µm (HCA050U046X25052A)
 Flow rate: 0.8ml/min
 Column temperature: 20°C
 Injection volume: 10µl
 Detector: UV, vitamin A at 325nm; vitamin E at 294nm
 Mobile phase: A: Methanol B: Water
 Gradient conditions

Time (min)	Flow Rate	Water(%)	Methanol(%)
0.0	0.8	4	96
12.0	0.8	4	96
12.5	1.0	4	96
17.0	1.0	0	100
30.0	1.0	0	100
31.0	0.8	4	96
33.0	0.8	4	96



Column: C30, 4.6 x 250mm, 3µm (HCA030U046X25053A)
 Flow rate: 0.8ml/min
 Column temperature: 20°C
 Injection volume: 10µl
 Detector: UV, 294nm
 Mobile phase: 100% Methanol

Determination of Lutein

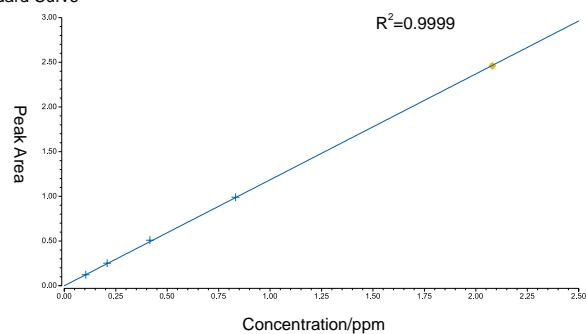
GB5009.248-2016

Column: C30, 4.6 x 250mm, 5µm (HCA050U046X25052A)
 Flow rate: 1.0ml/min
 Column temperature: 30°C
 Injection volume: 50µl
 Detector: UV, vitamin A at 325nm; vitamin E at 294nm
 Mobile phase: A:Methanol : Water (88:12, volume ratio, containing 0.1% BHT)
 B:Tert-butyl methyl ether(containing 0.1% BHT)

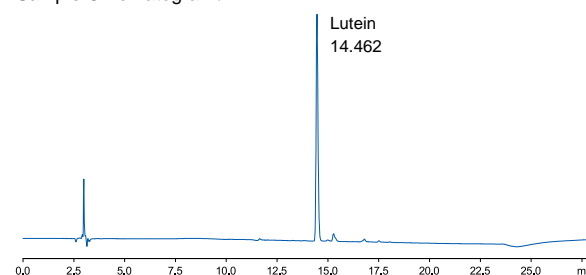
Gradient conditions

Time (min)	A (%)	B (%)
0	85	15
5	85	15
18	60	40
18.1	85	15
25	85	15

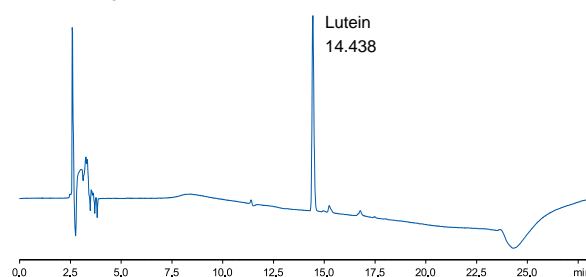
Standard Curve



Sample Chromatogram:



Sample Chromatogram:

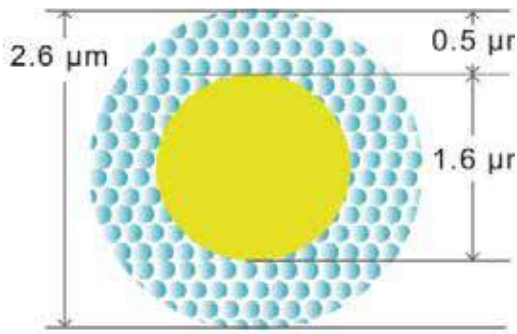


Ordering information

Packings	Product Code	diameter × length
C30	HCA050U046X25052A	4.6 × 250mm,5µm
C30	HCA030U046X25053A	4.6 × 250mm,5µm
C30 Guard Cartridge Kit	HCA050U040X02052KA	1 Holder and 1 Cartridge,5 µm,4.0 *20 mm
C30 Guard Cartridge	HCA050U040X02052A	4.0×20mm, 5µm

C18 HPLC Column

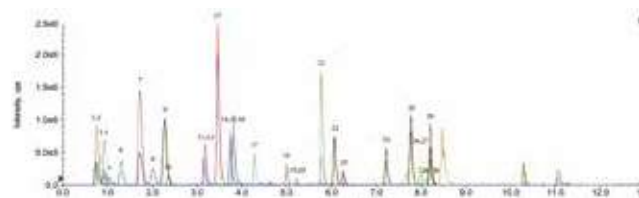
- A High column efficiency, low column pressure
- A High-throughput rapid analysis
- A Compatible with UHPLC and HPLC
- A High reproducibility



Shell is a nucleoparticle silica chromatography column with a particle size of 2.6 μm . It consists of a solid spherical core with a diameter of 1.6 μm and a porous shell layer with a thickness of 0.5 μm . It possesses equal column efficiency and separation performance to sub-2 μm UHPLC columns while only requiring half the column pressure. This allows it to be used on both UHPLC and HPLC instruments, enabling ultra-fast separation with shorter analysis times and higher separation efficiency.

HTraditional Chinese Medicine Pesticide Residues - Pharmacopoeia

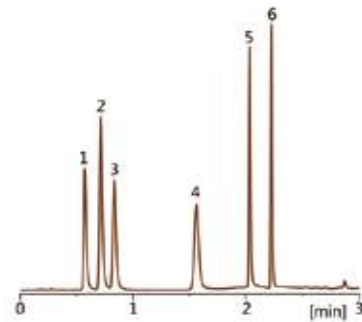
1. CAAGACGCAA	4. CCCTGAACAA
2. CAACCAACGT	5. CGTGATTGG
3. GGTGATCAAC	6. GGTCTATAC
11. Benx lithium sulfide	21. Benx lithium
12. Metasulfuron methyl	22. Fenthion
13. Carbaryl	23. Terbutyl thiophosphate sulfide
14. Chlorosulfuron	24. Chlorophen
15. Methyl para-phosphorus sulfide	25. Thioclorophen
16. Aminopropyl sulfuron	26. Methyl isothiophosphate
17. Ethyl parathion	27. Dieldrin
18. Terbutyl thiophosphate sulfide	28. Dieldrin
19. Methyl para-phosphorus sulfide	29. Fenvalerate
20. Nitrofurazone	30. Methyl para-phosphorus



Column:	C18 2.1 \times 100mm, 2.6 μm (HCA026U021X10011A)
Mobile phase	A phase 0.1% formic acid solution (containing 5mmol/L ammonium formate) B phase acetonitrile - 0.1% formic acid solution (containing 5mmol/L ammonium formate) (95:5)
Flow rate:	0.3ml/min
Temperature	40°C
Ionization mod	ESI, positive ion mode analysis
modetemperature:	Multi-reaction monitoring (MRM)

HTraditional Chinese Medicine Pesticide Residues - Pharmacopoeia

- | | |
|------------------|----------------------------|
| 1. Sulfadiazine | 4. Sulfamethoxyypyridazine |
| 2. Sulfathiazole | 5. Sulfamethoxazole |
| 3. Sulfamerazine | 6. Sulfaquinoxaline |



Column:	C18, 2.1mm \times 50mm, 2.6 μm , (HCA026U021X05011A)
Mobile phase	A: Acetonitrile ; B: 0.1% Formic Acid
Flow rate:	1.0ml/min
Detector:	254nm
Temperature	40°C

Time(min)	A(%)	B(%)
0	10	90
2	90	10

Ordering information

Packings	Product Code	Particle size	diameter \times length
C18	HCA026U021X05011A	2.6 μm	2.1 \times 50mm
C18	HCA026U021X10011A	2.6 μm	2.1 \times 100mm
C18	HCA026U046X10011A	2.6 μm	4.6 \times 100mm
C18	HCA026U046X05011A	2.6 μm	4.6 \times 50mm

More information

Packings	Product Code	Particle size	diameter \times length
PFP	HCA026U021X10013A	2.6 μm	4.6 \times 50mm

Silica

[Non- bonded silica, normal phase]

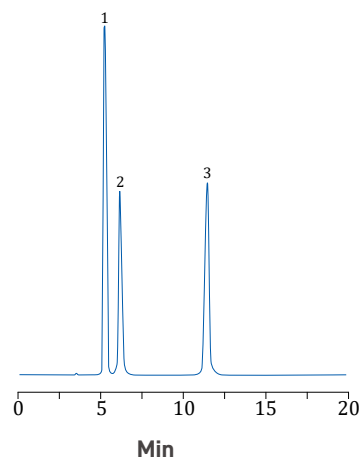
- A Spherical silica, non- bonded
- A For non-polar and medium polar organic compounds
- A Ultra pure, low metal impurity
- A Symmetrical peak shape

None bonded high-purity silica, metal impurity content <10ppm, high mechanical strength. Silica is fit for separation of non-polar and media polar organic compounds to achieve sharp peak shape and high reproducibility for columns.

Steroid

No.03225

- 1.Estrone
- 2.Estradiol
- 3.Estriol

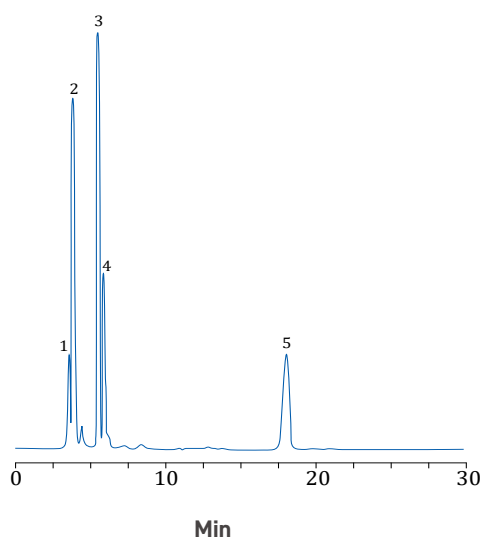


Column: Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
 Mobile phase: n-hexane / ethanol (85/15)
 Flow rate: 1.0 mL/min
 Detection: 270 nm
 Column temperature: 40 °C

Fat-soluble vitamins

No.03224

- 1.Vitamin A palmitate
- 2.Vitamin K1
- 3.Vitamin E
- 4.Vitamin K3
- 5.Vitamin D



Column: Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
 Mobile phase: n-hexane / chloroform (60/40)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 25 °C

Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05066A	3μm	2.1 × 50mm
HCA030U021X10066A	3μm	2.1 × 100mm
HCA030U021X15066A	3μm	2.1 × 150mm
HCA030U021X20066A	3μm	2.1 × 200mm
HCA030U021X25066A	3μm	2.1 × 250mm
HCA030U046X05066A	3μm	4.6 × 50mm
HCA030U046X10066A	3μm	4.6 × 100mm
HCA030U046X15066A	3μm	4.6 × 150mm
HCA030U046X20066A	3μm	4.6 × 200mm
HCA030U046X25066A	3μm	4.6 × 250mm
HCA050U021X05076A	5μm	2.1 × 50mm
HCA050U021X10076A	5μm	2.1 × 100mm
HCA050U021X15076A	5μm	2.1 × 150mm
HCA050U021X20076A	5μm	2.1 × 200mm
HCA050U021X25076A	5μm	2.1 × 250mm
HCA050U046X05076A	5μm	4.6 × 50mm
HCA050U046X10076A	5μm	4.6 × 100mm
HCA050U046X15076A	5μm	4.6 × 150mm
HCA050U046X20076A	5μm	4.6 × 200mm
HCA050U046X25076A	5μm	4.6 × 250mm

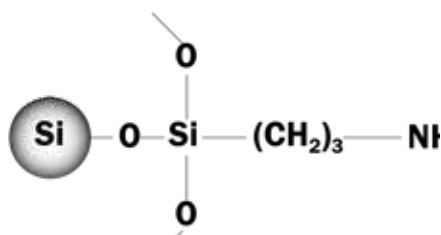
NH₂

[Both Normal and reverse phase mode]

A Bonded aminopropyl group

A Suitable for normal and reverse phase mode

A Separate sugars in reverse mode



Aminopropyl stationary phase serves as a weak anion exchanger and offer polar selectivity under reversed phase and normal phase conditions.

Carbohydrates

No.03226

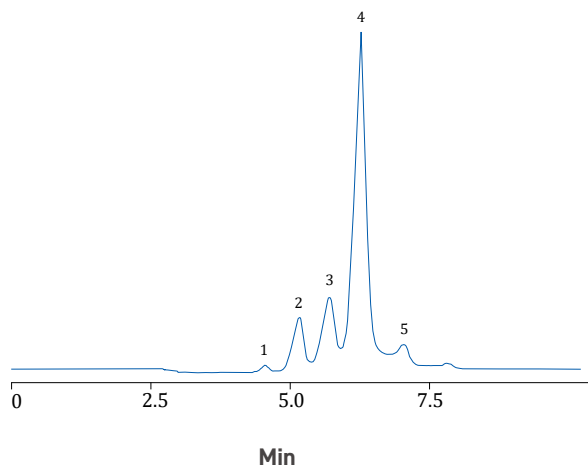
1. Glucose

2. Maltose

3. Maltotriose

4. Maltotetraose

5. Matlopentaos



Column: NH₂ 4.6 x 150mm, 5µm (HCA050U046X15077A)
 Mobile phase: acetonitrile / water (50/50)
 Flow rate: 1.0 mL/min
 Detection: RID
 Column temperature: 40 °C

Tocopherol isomers

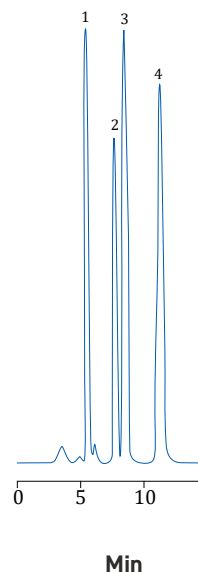
No.03227

1. α-Tocopherol

2. α-Tocopherol

3. α-Tocopherol

4. α-Tocopherol



Column: NH₂ 4.6 x 150mm, 5µm (HCA050U046X15077A)
 Mobile phase: n-hexane / ethyl acetate (70/30)
 Flow rate: 1.0 mL/min
 Detection: 295 nm
 Column temperature: 40 °C

Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05067A	3µm	2.1 × 50mm
HCA030U021X10067A	3µm	2.1 × 100mm
HCA050U021X15067A	3µm	2.1 × 150mm
HCA030U021X20067A	3µm	2.1 × 200mm
HCA030U021X25067A	3µm	2.1 × 250mm
HCA030U046X05067A	3µm	4.6 × 50mm
HCA030U046X10067A	3µm	4.6 × 100mm
HCA030U046X15067A	3µm	4.6 × 150mm
HCA030U046X20067A	3µm	4.6 × 200mm
HCA030U046X25067A	3µm	4.6 × 250mm
HCA050U021X05077A	5µm	2.1 × 50mm
HCA050U021X10077A	5µm	2.1 × 100mm
HCA050U021X15077A	5µm	2.1 × 150mm
HCA050U021X20077A	5µm	2.1 × 200mm
HCA050U021X25077A	5µm	2.1 × 250mm
HCA050U046X05077A	5µm	4.6 × 50mm
HCA050U046X10077A	5µm	4.6 × 100mm
HCA050U046X15077A	5µm	4.6 × 150mm
HCA050U046X20077A	5µm	4.6 × 200mm
HCA050U046X25077A	5µm	4.6 × 250mm

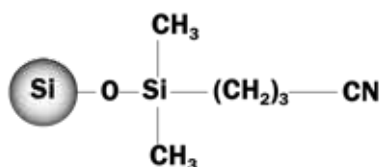
CN

[Can be used for normal or reverse phase separation]

A Bonded cyanopropyl

A Can be used for normal or reverse phase separation

A High column efficiency and good reproducibility



CN is cyanide propyl bonded silica column with n-electron interaction and unshared electron pair hydrogen bonding. Can be used for both reverse phase and normal phase mode. When used for reverse mode, having different selectivity from C18 and C8 columns; when used for normal phase mode, retention is lower than non-bonded silica gel column.

Ordering information

Product Code	Particle size	diameter × length
HCA030U021X15034A	3μm	2.1 × 150mm
HCA050U021X05033A	5μm	2.1 × 50mm
HCA050U021X10033A	5μm	2.1 × 100mm
HCA050U021X15033A	5μm	2.1 × 150mm
HCA050U021X20033A	5μm	2.1 × 200mm
HCA050U021X25033A	5μm	2.1 × 250mm
HCA050U046X05033A	5μm	4.6 × 50mm
HCA050U046X10033A	5μm	4.6 × 100mm
HCA050U046X15033A	5μm	4.6 × 150mm
HCA050U046X20033A	5μm	4.6 × 200mm
HCA050U046X25033A	5μm	4.6 × 250mm

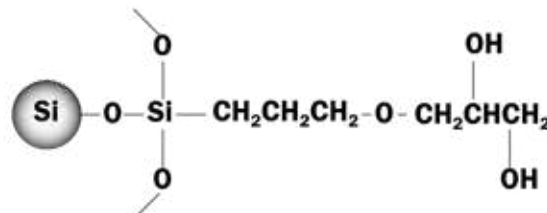
Diol

[Suitable for normal phase separation]

A Bonded group of 1,2 - dihydroxy-propyl ether propionate

A Normal phase separation

A Good reproducibility



Diol bonded 1,2 - dihydroxy-propyl ether propionate group, coverage of 4.0 micromol / m², can interact with polar compounds. diol is able to distinguish compounds from slight difference, also can separate biological molecules based on size exclusion mechanism.

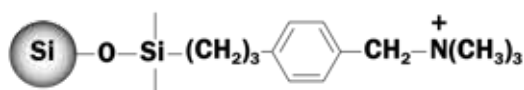
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05036A	3μm	2.1 × 50mm
HCA030U021X10036A	3μm	2.1 × 100mm
HCA030U021X15036A	3μm	2.1 × 150mm
HCA030U021X25036A	3μm	2.1 × 250mm
HCA030U046X05036A	3μm	4.6 × 50mm
HCA030U046X10036A	3μm	4.6 × 100mm
HCA030U046X15036A	3μm	4.6 × 150mm
HCA030U046X25036A	3μm	4.6 × 250mm
HCA050U021X05035A	5μm	2.1 × 50mm
HCA050U021X10035A	5μm	2.1 × 100mm
HCA050U021X15035A	5μm	2.1 × 150mm
HCA050U021X25035A	5μm	2.1 × 250mm
HCA050U046X05035A	5μm	4.6 × 50mm
HCA050U046X10035A	5μm	4.6 × 100mm
HCA050U046X15035A	5μm	4.6 × 150mm
HCA050U046X25035A	5μm	4.6 × 250mm

SAX

[Suitable for analysis of acidic substances]

- A Strong anion exchange mode
- A Suitable for analysis of acidic substances, including nucleotide and organic acids etc.
- A High column efficiency, high batch stability, good columns reproducibility
- A To adjust retention time of the analytes by changing buffer concentration of mobile phase
- A Stable in high proportion of water mobile phase



SAX column are bonded quaternary ammonium strong anion-exchange group in the high-purity silica matrix, having mixed chemical structure of quaternary ammonium and phenyl functional groups. This mixed-mode by strong anion exchange phase and hydrophobic phase is suitable for separation of aromatic or aliphatic carboxylic acids, sulfonic acids, nucleotides and acids etc.

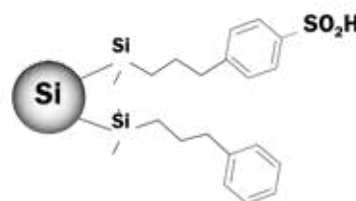
Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05020A	3μm	2.1 × 50mm
HCA030U021X10020A	3μm	2.1 × 100mm
HCA030U021X15020A	3μm	2.1 × 150mm
HCA030U021X25020A	3μm	2.1 × 250mm
HCA030U046X05020A	3μm	4.6 × 50mm
HCA030U046X10020A	3μm	4.6 × 100mm
HCA030U046X15020A	3μm	4.6 × 150mm
HCA030U046X25020A	3μm	4.6 × 250mm
HCA050U021X05021A	5μm	2.1 × 50mm
HCA050U021X10021A	5μm	2.1 × 100mm
HCA050U021X15021A	5μm	2.1 × 150mm
HCA050U021X25021A	5μm	2.1 × 250mm
HCA050U046X05021A	5μm	4.6 × 50mm
HCA050U046X10021A	5μm	4.6 × 100mm
HCA050U046X15021A	5μm	4.6 × 150mm
HCA050U046X25021A	5μm	4.6 × 250mm

SCX

[Suitable for analysis of alkaline substances]

- A Strong cation exchange mode
- A Fit for analysis of alkaline substances, especially amines
- A High column efficiency, stable batch, good columns reproducibility



SCX is benzenesulfonic acid bonded silica, having mixed chemical structure of sulfonic acid group and phenyl group. SCX is mixed mode of strong cation exchange phase and hydrophobic phase. Not only can be used for separation of cationic / basic and nitrogenous compounds, but also give appropriate reservation for a variety of weak cation, neutral organic compound. SCX is used for separation and determination of amines and polyamine compounds, such as alkaloids, peptides and components in cold medicines.

Ordering information

Product Code	Particle size	diameter × length
HCA030U021X05022A	3μm	2.1 × 50mm
HCA030U021X10022A	3μm	2.1 × 100mm
HCA030U021X15022A	3μm	2.1 × 150mm
HCA030U021X25022A	3μm	2.1 × 250mm
HCA030U046X05022A	3μm	4.6 × 50mm
HCA030U046X10022A	3μm	4.6 × 100mm
HCA030U046X15022A	3μm	4.6 × 150mm
HCA030U046X25022A	3μm	4.6 × 250mm
HCA050U021X05023A	5μm	2.1 × 50mm
HCA050U021X10023A	5μm	2.1 × 100mm
HCA050U021X15023A	5μm	2.1 × 150mm
HCA050U021X25023A	5μm	2.1 × 250mm
HCA050U046X05023A	5μm	4.6 × 50mm
HCA050U046X10023A	5μm	4.6 × 100mm
HCA050U046X15023A	5μm	4.6 × 150mm
HCA050U046X25023A	5μm	4.6 × 250mm
HCA050U046X25045A	5μm	4.6 × 250mm

Note: HCA050U046X25045A is the original SCX column.

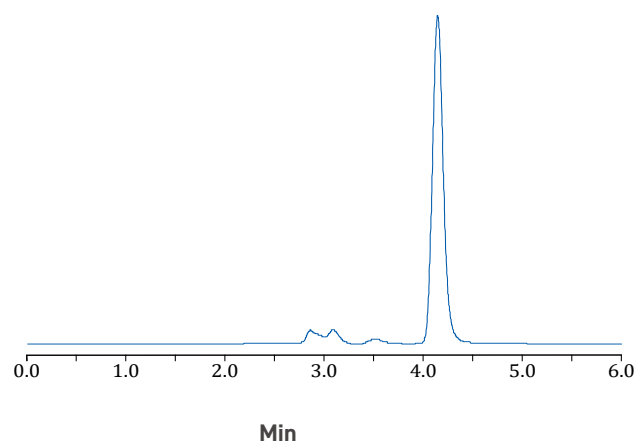
HILIC

[Suitable for analysis of strong polar substances]

Hydrophilic interaction liquid chromatography (HILIC) is a kind of liquid chromatography analytical method for strong polar and strong hydrophilic compounds separation. Sometimes, it is difficult to retain polar compound on reverse-phase column and Ion pair reagent cannot be added to mobile phase in LC / MS analysis. When use normal phase chromatography for analysis, polar and hydrophilic compounds are often difficult to be dissolved in conventional normal phase solvents. This time HILIC will be considered to use for analysis.

In three HILIC stationary phases, HILIC (1) is strong alkaline, HILIC (2) is weak alkaline, HILIC (3) is neutral.

Melamine No.03228



Column: HILIC (3) 4.6 × 250mm, 5μm (HCA050U046X25027A)
 Mobile phase: acetonitrile / 10 mM ammonium acetate (90/10)
 Flow rate: 1.0 mL/min
 Detection: 240 nm
 Column temperature: 25 °C

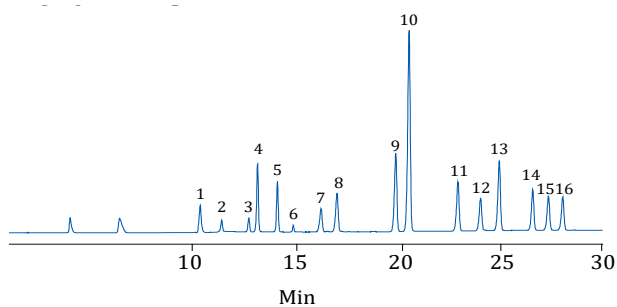
Difference of reverse phase chromatography, normal phase chromatography and HILIC

	stationary phase	mobile phase	elution order	applications
Reverse phase chromatography	Non-polar, such as C18, C8 etc	Polar, such as methanol, ethanol, water etc.	Polar subject flow quickly, non-polar flow slowly	Medium polar and non-polar substances
Normal phase chromatography	Polar, such as silica, amino, Cyano etc.	"Non-polar, such as N-hexane, acid ethyl ester etc."	non-polar subject flow quickly, polar flow slowly	Medium polar and polar substances
HILIC	Silica bonded hydrophilic stationary phase	Polar, methanol, ethanol, buffer saline etc.	non-polar subject flow quickly, polar flow slowly	Strong polar and strong hydrophilic compounds

Ordering information

Packings	Product Code	Particle size	diameter × length
HILIC	HCA030U021X05030A	3μm	2.1 × 50mm
HILIC	HCA030U021X15030A	3μm	2.1 × 150mm
HILIC	HCA030U046X15030A	3μm	4.6 × 150mm
HILIC(1)	HCA030U021X10089A	3μm	2.1 × 100mm
HILIC(1)	HCA030U021X15089A	3μm	2.1 × 150mm
HILIC(1)	HCA050U021X05031A	5μm	2.1 × 50mm
HILIC(1)	HCA050U021X10031A	5μm	2.1 × 100mm
HILIC(1)	HCA050U021X15031A	5μm	2.1 × 150mm
HILIC(1)	HCA030U046X05089A	3μm	4.6 × 50mm
HILIC(1)	HCA030U046X25089A	3μm	4.6 × 250mm
HILIC(1)	HCA050U046X15031A	5μm	4.6 × 150mm
HILIC(1)	HCA050U046X25031A	5μm	4.6 × 250 mm
HILIC(2)	HCA030U021X05029A	3μm	2.1 × 50mm
HILIC(2)	HCA030U021X10029A	3μm	2.1 × 100mm
HILIC(2)	HCA030U021X15029A	3μm	2.1 × 150mm
HILIC(2)	HCA030U021X25029A	3μm	2.1 × 250mm
HILIC(2)	HCA050U021X05032A	5μm	2.1 × 50mm
HILIC(2)	HCA050U021X10032A	5μm	2.1 × 100mm
HILIC(2)	HCA050U021X15032A	5μm	2.1 × 150mm
HILIC(2)	HCA050U021X25032A	5μm	2.1 × 250mm
HILIC(2)	HCA030U046X05029A	3μm	4.6 × 50mm
HILIC(2)	HCA030U046X10029A	3μm	4.6 × 100mm
HILIC(2)	HCA030U046X15029A	3μm	4.6 × 150mm
HILIC(2)	HCA030U046X25029A	3μm	4.6 × 250mm
HILIC(2)	HCA050U046X05032A	5μm	4.6 × 50mm
HILIC(2)	HCA050U046X10032A	5μm	4.6 × 100mm
HILIC(2)	HCA050U046X15032A	5μm	4.6 × 150mm
HILIC(2)	HCA050U046X25032A	5μm	4.6 × 250mm
HILIC(3)	HCA030U021X15028A	3μm	2.1 × 100mm
HILIC(3)	HCA050U021X15027A	5μm	2.1 × 150mm
HILIC(3)	HCA050U021X25027A	5μm	2.1 × 250mm
HILIC(3)	HCA050U046X15027A	5μm	4.6 × 150mm
HILIC(3)	HCA050U046X25027A	5μm	4.6 × 250mm
HILIC(4)	HCA030U021X05082A	3μm	2.1 × 50mm
HILIC(4)	HCA030U021X15082A	3μm	2.1 × 150mm
HILIC(4)	HCA050U046X25083A	5μm	4.6 × 250 mm

PAHS



Column: PAHs 4.6 × 250mm, 5µm
 Temperature: 30 °C
 Mobile phase: gradient A:water B:acetonitrile, 0min:40%B;25min 100%B;35min 100%B;45min 40%B
 Flow rate: 2.0 mL/min
 Uv: 266nm
 In.0j volume: 5ul (10ppm)

No	Retain Time (min)	compound	Area	resolution	N
1	10.308	Naphthalene	68432	0	50295
2	11.296	Acenaphthylene	30529	6.096	77067
3	12.628	Acenaphthene	39603	7.939	85468
4	13.057	Fluorene	200639	2.464	89050
5	14.033	Phenanthrene	145706	5.558	101577
6	14.812	Anthracene	15861	4.926	177837
7	16.174	Fluoranthene	99718	6.995	67625
8	16.959	Pyrene	168211	1.89	74148
9	19.84	Benzo(a)anthracene	327460	11.781	109283
10	20.497	Chrysene	868613	2.694	110027
11	22.894	Benzo(b)fluoranthene	213493	9.649	134462
12	24.006	Benzo(k)fluoranthene	142185	4.479	151157
13	24.923	Benzo(a)pyrene	301765	3.705	161656
14	26.564	Dibenzo(a,h)anthracene	167883	6.765	200804
15	27.336	Benzo(g,h,i)perylene	149700	3.173	191558
16	28.039	Indeno(1,2,3-cd)pyrene	145279	2.814	202122

Ordering information

Packings	Product Code	Particle size	diameter × length
PAHs	HCA050U046X25051A	5µm	4.6 × 250mm
PAHs Guard Cartridge	HCA050U040X02051A	5µm	4.0 × 20mm
PAHs Guard Cartridge Kit	HCA050U040X02051KA	5µm	1 Holder and 1 Cartridge 5µm, 4.0 × 20mm

Guard column

[Longer column life, higher column efficiency]

- Protect analytical column, extend column life
- Easy to use
- Cartridges can be purchased separately, affordable

Why use guard column?

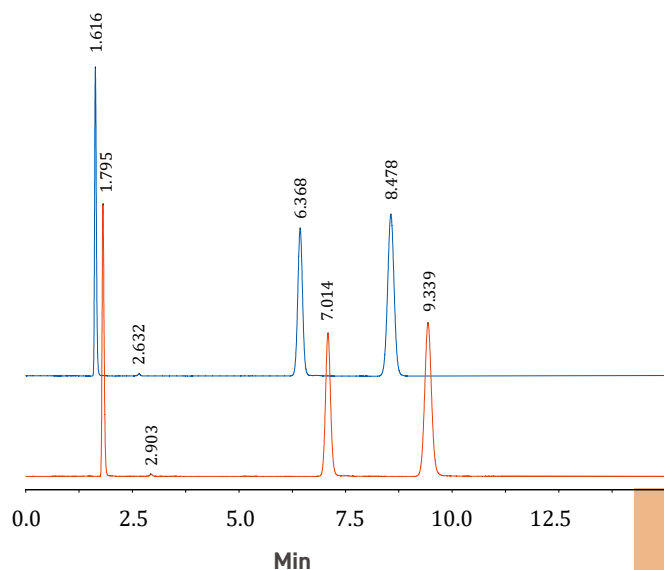
Using guard column can protect analytical column from contamination by sample and solvent residue and extend column life.

Will use of guard columns affect analysis result?

In HPLC system, use of guard column will not affect analysis results. As shown in the figure, resolution and peak shape are not affected by increased guard column. The impact of 4mm ID guard column on pressure is only 50 psi.

When to replace guard column?

Guard column is used to prevent contamination of column, so when the cartridges have been blocked by pollution, change a new one to avoid damage to analytical column. We advise you replace guard cartridges periodically according to the properties of sample and the frequency of column use. When system pressure increases and peak shape become poor, check especially whether the problem is raised by guard column contamination. If true replace it in time.



Ordering information

Packings	Product Code	Particle size	diameter × length
Guard Cartridge Holder A	HCA040X0200HA		4.0 × 20mm
C18-WP Guard Cartridge	HCA050U040X02072A	5μm	4.0 × 20mm
C18-WP Guard Cartridge Kit	HCA050U040X02072KA	5μm	4.0 × 20mm
C18-WP Guard Cartridge	HCA050U021X02072A	5μm	2.1 × 20mm
C18-WP Guard Cartridge Kit	HCA050U021X02072KA	5μm	2.1 × 20mm
C18 Guard Cartridge	HCA050U040X02071A	5μm	4.0 × 20mm
C18 Guard Cartridge Kit	HCA050U040X02071KA	5μm	4.0 × 20mm
C8 Guard Cartridge	HCA050U040X02075A	5μm	4.0 × 20mm
C8 Guard Cartridge Kit	HCA050U040X02075KA	5μm	4.0 × 20mm
C8 Guard Cartridge	HCA050U021X02065A	5μm	2.1 × 20mm
C8 Guard Cartridge Kit	HCA050U021X02065KA	5μm	2.1 × 20mm
C4 Guard Cartridge Kit	HCA050U040X02079KA	5μm	4.0 × 20mm
Silica Guard Cartridge	HCA050U040X02076A	5μm	4.0 × 20mm
Silica Guard Cartridge Kit	HCA050U040X02076KA	5μm	4.0 × 20mm
Silica Guard Cartridge	HCA050U021X02067A	5μm	2.1 × 20mm
Silica Guard Cartridge Kit	HCA050U021X02067KA	5μm	2.1 × 20mm
NH2 Guard Cartridge	HCA050U040X02077A	5μm	4.0 × 20mm
NH2 Guard Cartridge Kit	HCA050U040X02077KA	5μm	4.0 × 20mm
NH2 Guard Cartridge	HCA050U021X02067A	5μm	2.1 × 20mm
NH2 Guard Cartridge Kit	HCA050U021X02067KA	5μm	2.1 × 20mm
CN Guard Cartridge	HCA050U040X02033A	5μm	4.0 × 20mm
CN Guard Cartridge Kit	HCA050U040X02033KA	5μm	4.0 × 20mm
CN Guard Cartridge	HCA050U021X02034A	5μm	2.1 × 20mm
CN Guard Cartridge Kit	HCA050U021X02034KA	5μm	2.1 × 20mm
Phenyl Guard Cartridge	HCA050U040X02037A	5μm	4.0 × 20mm
Phenyl Guard Cartridge Kit	HCA050U040X02037KA	5μm	4.0 × 20mm

Description:

- Guard Cartridge Kit specification: 1 piece cartridge holder+1piece cartridge
- Guard cartridge specification: 2 pieces / box

Polymer matrix analytical column

Sep reverse phase column

[Wider pH range]

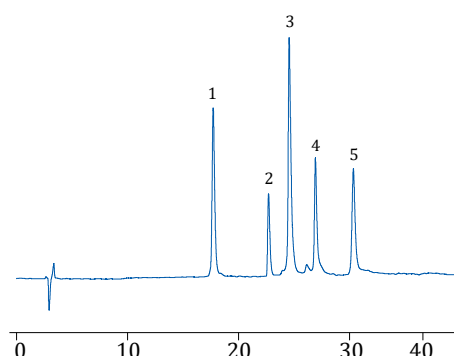
Sep series have three kinds of reverse phase which structure is phenyl functional group that enables hydrophobic interaction. Sep RP and RP3 bonded to porous particles. Sep RP is 100Å while Sep RP3 is 300Å. Sep SP is phenyl bonded to nonporous particles.

Compared with silica based reversed phases, PS/DVB matrix columns have advantages over applications at extreme pH(1-14) with special selectivity and slightly lower separation efficiency.

Protein separation

No.03229

1. Ribonuclease B
2. Insulin
3. Cytochrome C
4. Lysozyme
5. Bovine serum albumin (BSA)



Column: RP3 4.6 × 150mm, 5μm (HCA050U046X150A3A)
 Mobile phase: A: 0.1% TFA aqueous solution
 B: 0.1% TFA dissolved in acetonitrile
 0min 5min 45min
 20%B 20%B 60%B
 Flow rate: 1.0 mL/min
 Detection: 214 nm
 Column temperature: 40 °C

Ordering information

Packings	Product Code	Particle size	diameter × length
Sep RP1	HCA050U021X050A1A	5μm	2.1×50mm
Sep RP1	HCA050U021X150A1A	5μm	2.1×100mm
Sep RP1	HCA050U021X100A1A	5μm	2.1×150mm
Sep RP1	HCA050U021X250A1A	5μm	2.1×250mm
Sep RP1	HCA050U046X050A1A	5μm	4.6×50mm
Sep RP1	HCA050U046X100A1A	5μm	4.6×100mm
Sep RP1	HCA050U046X150A1A	5μm	4.6×150mm
Sep RP1	HCA050U046X250A1A	5μm	4.6×250mm
Sep RP1	HCA050U078X150A1A	5μm	7.8×150mm
Sep RP1	HCA050U078X250A1A	5μm	7.8×250mm
Sep RP1	HCA100U021X050A2A	10μm	2.1×50mm
Sep RP1	HCA100U021X100A2A	10μm	2.1×100mm
Sep RP1	HCA100U021X150A2A	10μm	2.1×150mm
Sep RP1	HCA100U021X250A2A	10μm	2.1×250mm
Sep RP1	HCA100U046X050A2A	10μm	4.6×50mm
Sep RP1	HCA100U046X100A2A	10μm	4.6×100mm
Sep RP1	HCA100U046X150A2A	10μm	4.6×150mm
Sep RP1	HCA100U046X250A2A	10μm	4.6×250mm
Sep RP1	HCA100U078X150A2A	10μm	7.8×150mm
Sep RP1	HCA100U078X250A2A	10μm	7.8×250mm
Sep RP3	HCA050U021X050A3A	5μm	2.1×50mm
Sep RP3	HCA050U021X100A3A	5μm	2.1×100mm
Sep RP3	HCA050U021X150A3A	5μm	2.1×150mm
Sep RP3	HCA050U021X250A3A	5μm	2.1×250mm
Sep RP3	HCA050U046X050A3A	5μm	4.6×50mm
Sep RP3	HCA050U046X100A3A	5μm	4.6×100mm
Sep RP3	HCA050U046X150A3A	5μm	4.6×150mm
Sep RP3	HCA050U046X250A3A	5μm	4.6×250mm
Sep RP3	HCA050U078X150A3A	5μm	7.8×150mm
Sep RP3	HCA050U078X250A3A	5μm	7.8×250mm
Sep RP3	HCA100U021X050A4A	10μm	2.1×50mm
Sep RP3	HCA100U021X100A4A	10μm	2.1×100mm
Sep RP3	HCA100U021X150A4A	10μm	2.1×150mm

Ordering information

Packings	Product Code	Particle size	diameter × length
Sep RP3	HCA100U021X250A4A	10μm	2.1×250mm
Sep RP3	HCA100U046X050A4A	10μm	4.6×50mm
Sep RP3	HCA100U046X100A4A	10μm	4.6×100mm
Sep RP3	HCA100U046X150A4A	10μm	4.6×150mm
Sep RP3	HCA100U046X250A4A	10μm	4.6×250mm
Sep RP3	HCA100U078X150A4A	10μm	7.8×150mm
Sep RP3	HCA100U078X250A4A	10μm	7.8×250mm
Sep SP	HCA0030U021X050A5A	3μm	2.1×50mm
Sep SP	HCA0030U021X150A5A	3μm	2.1×150mm
Sep SP	HCA0030U046X050A5A	3μm	4.6×50mm
Sep SP	HCA0030U046X100A5A	3μm	4.6×100mm
Sep SP	HCA0030U046X150A5A	3μm	4.6×150mm
Sep SP	HCA0030U046X250A5A	3μm	4.6×250mm
Sep SP	HCA050U021X050A6A	5μm	2.1×50mm
Sep SP	HCA050U021X150A6A	5μm	2.1×150mm
Sep SP	HCA050U046X050A6A	5μm	4.6×50mm
Sep SP	HCA050U046X150A6A	5μm	4.6×150mm
Sep SP	HCA050U046X250A6A	5μm	4.6×250mm
Sep SP	HCA050U078X250A6A	5μm	7.8×250mm
Sep SP	HCA100U021X050A7A	10μm	2.1×50mm
Sep SP	HCA100U021X150A7A	10μm	2.1×150mm
Sep SP	HCA100U046X050A7A	10μm	4.6×50mm
Sep SP	HCA100U046X150A7A	10μm	4.6×150mm
Sep SP	HCA100U046X250A7A	10μm	4.6×250mm
Sep SP	HCA100U078X250A7A	10μm	7.8×250mm

Sep sugar column and organic acids column

[Sugars, sugar alcohols and organic acid analysis]

Sep sugar column and organic acids column are based on low crosslinked polystyrene / divinylbenzene (PS/DVB) particles with the surface modified with sulfonic acid (-SO₃H) for Carboximix H-NP resins, followed by chelating of calcium ions (Ca²⁺) for synthesis of Carboximix Ca-NP resins. Resin cross-linking degree is an important parameter in the separation. We provide a 5% (-L), 8% (-M) and 10% (-H), three kinds of crosslinking degrees products. And 5μm and 10μm particle size products are offered.

Sep sugar columns and organic acids columns are more comprehensive and economic, compared with Bio-Rad , Transgenomic and other brands of similar products.

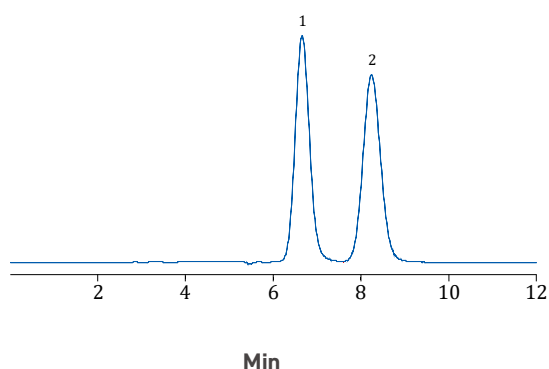
Packings	Type	Cross-linking degree	PH range	Maximum temperature	Applications
Sep H-L	H	5%	1-3	85°C	fermentation products and fruit juice containing organic acids, sugar and sugar alcohol
Sep H-M	H	8%	1-3	85°C	
Sep H-H	H	10%	1-3	85°C	
Sep Ca-L	Ca	5%	5-9	85°C	monosaccharides, oligosaccharides and sugar alcohols
Sep Ca-M	Ca	8%	5-9	85°C	
Sep Ca-H	Ca	10%	5-9	85°C	
Sep Pb-L	Pb	5%	5-9	85°C	Pentose and hexose in wood products, dairy products containing sucrose, lactose,
Sep Pb-M	Type	8%	5-9	85°C	
Sep Pb-H	Pb	10%	5-9	85°C	
Sep K-L	Pb	5%	5-9	85°C	Sucrose, honey, corn syrup, etc.
Sep K-M	K	8%	5-9	85°C	
Sep K-H	K	10%	5-9	85°C	
Sep Na-L	K	5%	5-9	85°C	Oligosaccharides, samples containing sodium ions
Sep Na-M	Na	8%	5-9	85°C	
Sep Na-H	Na	10%	5-9	85°C	



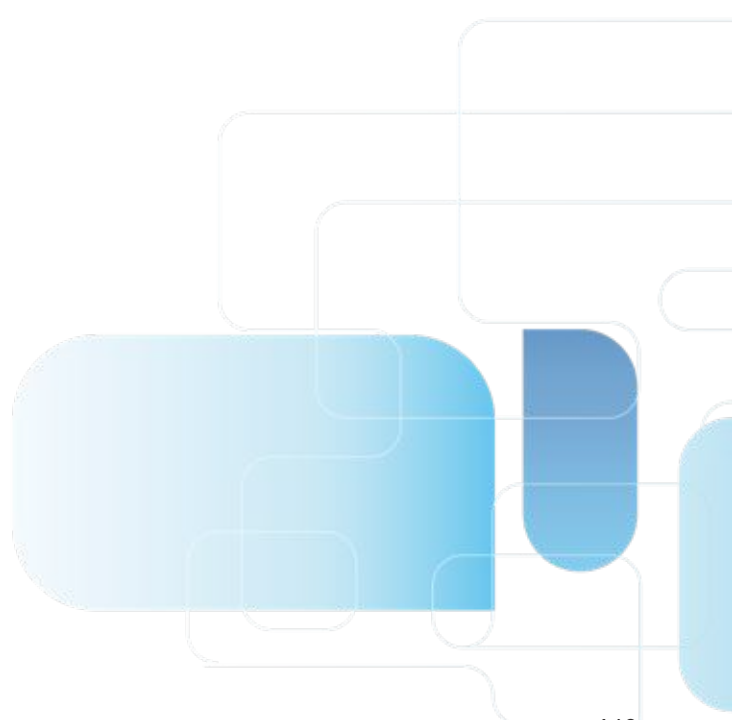
Sorbitol and Mannitol

No.03234

- 1.Mannitol
2. Sorbitol



Column: Sep Ca-M 4.6 × 250 mm, 10μm (HCA100U046X250C4A)
 Mobile phase: water
 Flow rate: 0.5 mL/min
 Detection: RID
 Column temperature: 80 °C



Sugar column and Organic acid column retention time reference table

	Sep H-L	Sep H-L	Sep H-M	Sep H-H	Sep Ca-M	Sep Ca-H
Particle size	5μm	10μm	10μm	10μm	10μm	10μm
Malic acid	8.66	12.03	9.8	9.24	/	/
Oxalic acid	8.94	7.72	7.44	7.72	/	/
Citric acid	9.63	10.26	8.69	8.35	/	/
Tartaric acid	10	10.74	8.94	8.64	/	/
Maleic acid	10.01	9.5	8.53	8.56	/	/
Succinic acid	12.26	14.45	11.54	10.47	/	/
Fumaric acid	13.08	7.37	7.16	7.49	/	/
Lactic acid	13.66	15.41	12.7	11.55	/	/
Formic acid	14.97	16.11	13.51	12.48	/	/
Acetic acid	16.07	17.52	14.64	13.39	/	/
Maltotriose	9.08	8.94	7.7	7.9	8.33	8.57
D-(+)-Cellobiose	9.41	9.79	8.18	8.17	8.81	8.96
(D-+)-Maltose	9.51	10.01	8.29	8.23	9.02	9.09
D-Lactose	9.6	10.24	8.42	8.29	9.25	9.22
D-Glucose	10.73	11.9	9.68	9.16	10.61	10.32
D-(+)-Mannose	11.13	12.55	10.13	9.48	12.05	11.45
D-(+)-Galactose	11.16	12.54	10.15	9.48	11.77	11.2
D-Fructose	11.24	12.65	10.27	9.58	13.34	12.45
D-Xylose	11.32	12.61	10.24	9.6	11.63	11.19
D-Lyxose	11.62	13.08	10.64	9.87	13.96	13.02
L-(+)-Arabinose	11.89	13.45	10.93	10.08	13.41	12.53
D-(-)-Arabinose	11.9	13.46	10.93	10.08	13.43	12.52
D-(-)-Ribose	12.09	13.73	11.16	10.25	20.7	19.23
D-(+)-Sucrose	/	/	/	/	8.93	9.03
Maltitol	9.72	10.51	8.41	8.29	11.92	11.24
D-Mannitol	11.56	12.99	10.53	9.79	17.34	15.6
Galactitol	11.61	13.13	10.66	9.87	19.44	18.05
D-Sorbitol	11.61	13.12	10.64	9.86	20.22	18.71
Adonitol	12.15	13.59	11.1	10.26	14.73	13.67
Arabinitol	12.33	13.82	11.3	10.41	17.72	16.06
Xylitol	12.46	14.03	11.47	10.53	21.08	18.66
Erythriol	13.16	14.7	11.94	11	15.98	14.47

Column: 7.8 × 300 mm, time unit (min)

7.8× 300 mm, time unit (min)

5μm: flow rate: 0.5mL/min, column temperature: 80 ° C, detection device: RID

10μm: flow rate: 0.6mL/min, column temperature: 80 ° C, detection device: RID

Ordering information

Packings	Product Code	Particle size	diameter × length
Sep H-L	HCA100U046X300B2A	10μm	4.6×300mm
Sep H-L	HCA100U078X300B2A	10μm	7.8×300mm
Sep H-M	HCA050U046X250B3A	5μm	4.6×250mm
Sep H-M	HCA050U078X100B3A	5μm	7.8×100mm
Sep H-M	HCA050U078X300B3A	5μm	7.8×300mm
Sep H-M	HCA100U046X250B4A	10μm	4.6×250mm
Sep H-M	HCA100U046X300B4A	10μm	4.6×300mm
Sep H-M	HCA100U078X300B4A	10μm	7.8×300mm
Sep H-H	HCA100U046X300B6A	10μm	4.6×300mm
Sep H-H	HCA100U078X300B6A	10μm	7.8×300mm
Sep Ca-L	HCA100U046X300C2A	10μm	4.6×300mm
Sep Ca-L	HCA100U078X300C2A	10μm	7.8×300mm
Sep Ca-M	HCA050U046X250C3A	5μm	4.6×250mm
Sep Ca-M	HCA050U078X300C3A	5μm	7.8×300mm
Sep Ca-M	HCA100U046X250C4A	10μm	4.6×250mm
Sep Ca-M	HCA100U046X300C4A	10μm	4.6×300mm
Sep Ca-M	HCA100U078X300C4A	10μm	7.8×300mm
Sep Ca-H	HCA050U046X250C5A	5μm	4.6×250mm
Sep Ca-H	HCA100U046X300C6A	10μm	4.6×300mm
Sep Ca-H	HCA100U078X300C6A	10μm	7.8×300mm
Sep Pb-L	HCA100U046X300D2A	10μm	4.6×300mm
Sep Pb-L	HCA100U078X300D2A	10μm	7.8×300mm
Sep Pb-M	HCA050U046X250D3A	5μm	4.6×250mm
Sep Pb-M	HCA050U078X100D3A	5μm	7.8×100mm
Sep Pb-M	HCA050U078X300D3A	5μm	7.8×300mm
Sep Pb-M	HCA100U046X300D4A	10μm	4.6×300mm
Sep Pb-M	HCA100U078X300D4A	10μm	7.8×300mm
Sep Pb-H	HCA100U046X300D6A	10μm	4.6×300mm
Sep Pb-H	HCA100U078X300D6A	10μm	7.8×300mm
Sep K-L	HCA100U046X300E2A	10μm	4.6×300mm
Sep K-L	HCA100U078X300E2A	10μm	7.8×300mm
Sep K-M	HCA050U046X250E3A	5μm	4.6×250mm
Sep K-M	HCA050U078X100E3A	5μm	7.8×100mm
Sep K-M	HCA050U078X100E3A	5μm	7.8×300mm
Sep K-M	HCA100U046X300E4A	10μm	4.6×300mm
Sep K-M	HCA100U078X300E4A	10μm	7.8×300mm
Sep K-H	HCA100U046X300E6A	10μm	4.6×300mm
Sep K-H	HCA100U078X300E6A	10μm	7.8×300mm
Sep Na-L	HCA100U046X300F2A	10μm	4.6×300mm
Sep Na-L	HCA100U078X300F2A	10μm	7.8×300mm
Sep Na-M	HCA050U046X250F3A	5μm	4.6×250mm
Sep Na-M	HCA050U078X100F3A	5μm	7.8×100mm
Sep Na-M	HCA050U078X300F3A	5μm	7.8×300mm
Sep Na-M	HCA100U046X250F4A	10μm	4.6×250mm
Sep Na-M	HCA100U046X300F4A	10μm	4.6×300mm
Sep Na-M	HCA100U078X300F4A	10μm	7.8×300mm
Sep Na-H	HCA100U046X300F6A	10μm	4.6×300mm
Sep Na-H	HCA100U078X300F6A	10μm	7.8×300mm



Sep ion exchange column

[Polymer matrix ion exchange]

Sep polymer matrix ion exchange column, which support is composed of a rigid, spherical, highly cross-linked poly(styrene divinylbenzene) (PS/DVB) bead, show high efficiency and high recovery separations for biological molecules. The PS/DVB resin surface is grafted with a highly hydrophilic, neutral polymer thin layer that eliminates non-specific bindings with biological analytes. Sep ion-exchange phases are composed of SCX, WCX, SAX, and WAX.

A Suitable for peptides, carbohydrates, polysaccharides, proteins, polynucleotides, etc

A Wide pH range: 2 - 12

A High resolution for slightly differed structures of biological species

A High adsorption capacity

A Excellent resolution and selectivity

Ordering information

Packings	Product Code	Particle size	diameter × length
Sep SCX	HCA030U021X050H1A	3μm	2.1×50mm
Sep SCX	HCA030U021X100H1A	3μm	2.1×100mm
Sep SCX	HCA030U046X050H1A	3μm	4.6×50mm
Sep SCX	HCA030U046X100H1A	3μm	4.6×100mm
Sep SCX	HCA030U046X150H1A	3μm	4.6×150mm
Sep SCX	HCA050U021X100H2A	5μm	2.1×100mm
Sep SCX	HCA050U021X150H2A	5μm	2.1×150mm
Sep SCX	HCA050U046X050H2A	5μm	4.6×50mm
Sep SCX	HCA050U046X100H2A	5μm	4.6×100mm
Sep SCX	HCA050U046X150H2A	5μm	4.6×150mm
Sep SCX	HCA050U046X250H2A	5μm	4.6×250mm
Sep SCX	HCA100U021X050H3A	10μm	2.1×50mm
Sep SCX	HCA100U021X100H3A	10μm	2.1×100mm
Sep SCX	HCA100U021X150H3A	10μm	2.1×150mm
Sep SCX	HCA100U046X050H3A	10μm	4.6×50mm
Sep SCX	HCA100U046X100H3A	10μm	4.6×100mm
Sep SCX	HCA100U046X150H3A	10μm	4.6×150mm
Sep SCX	HCA100U046X250H3A	10μm	4.6×250mm
Sep WCX	HCA030U021X050H4A	3μm	2.1×50mm
Sep WCX	HCA030U021X100H4A	3μm	2.1×100mm
Sep WCX	HCA030U046X050H4A	3μm	4.6×50mm
Sep WCX	HCA030U046X100H4A	3μm	4.6×100mm
Sep WCX	HCA030U046X150H4A	3μm	4.6×150mm
Sep WCX	HCA050U021X050H5A	5μm	2.1×50mm
Sep WCX	HCA050U021X100H5A	5μm	2.1×100mm
Sep WCX	HCA050U021X150H5A	5μm	2.1×150mm
Sep WCX	HCA050U046X050H5A	5μm	4.6×50mm
Sep WCX	HCA050U046X100H5A	5μm	4.6×100mm
Sep WCX	HCA050U046X150H5A	5μm	4.6×150mm
Sep WCX	HCA100U021X050H6A	10μm	2.1×50mm
Sep WCX	HCA100U021X100H6A	10μm	2.1×100mm
Sep WCX	HCA100U021X150H6A	10μm	2.1×150mm
Sep WCX	HCA100U046X050H6A	10μm	4.6×50mm
Sep WCX	HCA100U046X100H6A	10μm	4.6×100mm
Sep WCX	HCA100U046X150H6A	10μm	4.6×150mm
Sep WCX	HCA100U046X250H6A	10μm	4.6×250mm

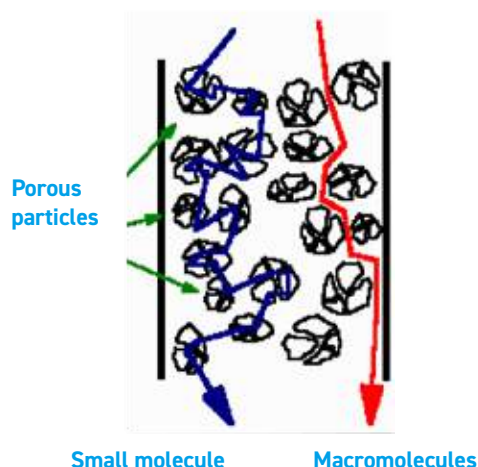
Ordering information

Packings	Product Code	Particle size	diameter × length
Sep SAX	HCA030U021X050G1A	3μm	2.1×50mm
Sep SAX	HCA030U021X100G1A	3μm	2.1×100mm
Sep SAX	HCA030U046X050G1A	3μm	4.6×50mm
Sep SAX	HCA030U046X100G1A	3μm	4.6×100mm
Sep SAX	HCA030U046X150G1A	3μm	4.6×150mm
Sep SAX	HCA050U021X050G2A	5μm	2.1×50mm
Sep SAX	HCA050U021X100G2A	5μm	2.1×100mm
Sep SAX	HCA050U021X150G2A	5μm	2.1×150mm
Sep SAX	HCA050U046X050G2A	5μm	4.6×50mm
Sep SAX	HCA050U046X100G2A	5μm	4.6×100mm
Sep SAX	HCA050U046X150G2A	5μm	4.6×150mm
Sep SAX	HCA100U021X050G3A	10μm	2.1×50mm
Sep SAX	HCA100U021X100G3A	10μm	2.1×100mm
Sep SAX	HCA100U021X150G3A	10μm	2.1×150mm
Sep SAX	HCA100U046X050G3A	10μm	4.6×50mm
Sep SAX	HCA100U046X100G3A	10μm	4.6×100mm
Sep SAX	HCA100U046X150G3A	10μm	4.6×150mm
Sep SAX	HCA100U046X250G3A	10μm	4.6×250mm
Sep WAX	HCA030U021X050G4A	3μm	2.1×50mm
Sep WAX	HCA030U021X100G4A	3μm	2.1×100mm
Sep WAX	HCA030U046X050G4A	3μm	4.6×50mm
Sep WAX	HCA030U046X100G4A	3μm	4.6×100mm
Sep WAX	HCA030U046X150G4A	3μm	4.6×150mm
Sep WAX	HCA050U021X050G5A	5μm	2.1×50mm
Sep WAX	HCA050U021X100G5A	5μm	2.1×100mm
Sep WAX	HCA050U021X150G5A	5μm	2.1×150mm
Sep WAX	HCA050U046X050G5A	5μm	4.6×50mm
Sep WAX	HCA050U046X100G5A	5μm	4.6×100mm
Sep WAX	HCA050U046X150G5A	5μm	4.6×150mm
Sep WAX	HCA100U021X050G6A	10μm	2.1×50mm
Sep WAX	HCA100U021X100G6A	10μm	2.1×100mm
Sep WAX	HCA100U021X150G6A	10μm	2.1×150mm
Sep WAX	HCA100U046X050G6A	10μm	4.6×50mm
Sep WAX	HCA100U046X100G6A	10μm	4.6×100mm
Sep WAX	HCA100U046X150G6A	10μm	4.6×150mm
Sep WAX	HCA100U046X250G6A	10μm	4.6×250mm

Size exclusion column (SEC)

Size Exclusion Chromatography (SEC), is a chromatographic method in which molecules in solution are separated by their size, not by molecular weight. It is usually applied to large molecules or macromolecular complexes such as industrial polymers, proteins and nanoparticles.

Major brands on the market are TKS, Shodex etc. CNW size exclusion columns have the same excellent performance.



The column used is filled with high-purity silica or polymer containing many pores. Macromolecules which cannot enter the pores flow quickly through the column, while small molecules which can penetrate deep into the pores flow more slowly through the column; other molecules have different retention time according to their size.

Compare the calibration curves and select a column that is best suited to the range of molecule weights to be measured. If samples contain molecules larger than the packing material pores, they are excluded and can cause a peak to appear near the exclusion limit.

Size exclusion chromatography can be divided into:

Gel permeation chromatography (GPC) which uses a hydrophobic column packing material and a non-aqueous mobile phase (organic solvent) to measure the molecular weight distribution of synthetic polymers.

Gel filtration chromatography (GFC) which uses a hydrophilic packing material and an aqueous mobile phase to separate, fractionate, or measure the molecular weight distribution of molecules soluble in water, such as polysaccharides and proteins.

Gel silica matrix SEC column

Gel columns are all silica matrix size exclusion chromatography. X and S series packings, offering both 3µm and 5µm two particle sizes, can meet different separation requirements. Widely used in biological molecules and water-soluble polymers separation, including proteins, nucleic acids, etc. X-Series packing is more universal. Compared to X-Series, S-Series is more suitable for insulin, trypsin etc. hydrophobic protein, as well as monoclonal antibody protein.

Gel X series of columns (Universal)

pH range: 2 - 8.5, maximum temperature 80°C, salt concentration 20 mM - 2.0M, mobile phase is conventional aqueous phase and organic phase solvent.

Filler Model

packing model	aperture diameter	Particle size	protein molecular weight	water-soluble
polymer molecular weight	100Å	3µm	100 - 100,000	500 - 10,000
Gel X3015	150Å	3µm	500 - 150,000	500 - 25,000
Gel X3030	300Å	3µm	5,000 - 1,250,000	1,000 - 100,000
Gel X5010	100Å	5µm	100 - 100,000	500 - 10,000
Gel X5015	150Å	5µm	500 - 150,000	500 - 25,000
Gel X5030	300Å	5µm	5,000 - 1,250,000	1,000 - 100,000
Gel X5050	500Å	5µm	15,000 - 5,000,000	2,500 - 500,000
Gel X5100	1000Å	5µm	50,000 - 7,500,000	5,000 - 1,500,000
Gel X5200	2000Å	5µm	>10,000,000	50,000 - >2,500,000

Chromatography

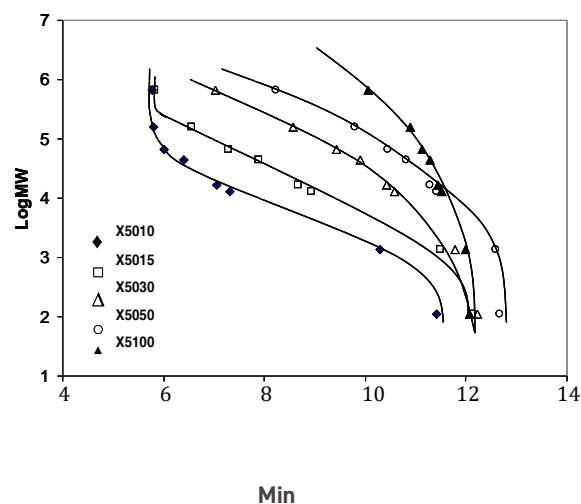
Gel S series columns (S series packing is ideal for separation of insulin, trypsin etc. hydrophobic protein, as well as monoclonal antibody protein)

pH range: 2 - 8.5, maximum temperature 80°C , salt concentration 20 mM - 2.0M, mobile phase is conventional aqueous phase and organic phase solvent.

Packing model	Aperture diameter	Partial size	Protein molecular weight
Gel S3010	100Å	3µm	100 - 100,000
Gel S3015	150Å	3µm	500 - 150,000
Gel S3030	300Å	3µm	5,000 - 1,250,000
Gel S5015	150Å	5µm	500 - 150,000
Gel S5030	300Å	5µm	5,000 - 1,250,000
Gel S5050	500Å	5µm	15,000 - 5,000,000

protein molecular weight calibration curve

No.03236

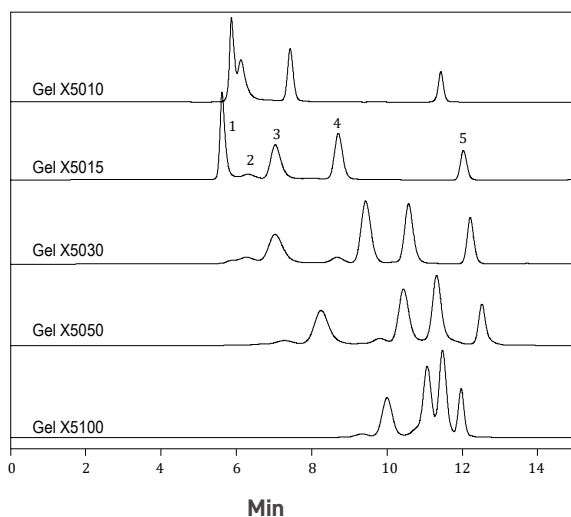


Column: Column: Gel X5010 7.8 × 300mm, 5µm (HCA050U078X300ADA) Gel X5015 7.8 × 300mm, 5µm (HCA050U078X300AEA) Gel X5030 7.8 × 300mm, 5µm (HCA050U078X300AFA) Gel X5100 7.8 × 300mm, 5µm (8.830AH.0001)
 Mobile phase: 150 mM sodium phosphate buffer (pH 7.0)
 Flow rate: 0.35 mL/min
 Detection: 214 nm
 Column temperature: 23 °C

1. Thyroglobulin, 670 kD
2. gamma-Globulin, 158kD
3. BSA, 66 kD
4. Ovalbumin, 44 kD
5. Myoglobin, 17.6 kD
6. Ribonuclease A, 13.7 kD
7. B12, 1.35 kD
8. Uracil, 120.

Comparison of different columns for separation of protein samples

No.03235



Column: Gel X5010 4.6 × 300mm, 5µm (HCA050U046X300ADA)
 Gel X5015 4.6 × 300mm, 5µm (HCA050U046X300AEA)
 Gel X5030 4.6 × 300mm, 5µm (HCA050U046X300AFA)
 Gel X5100 4.6 × 300mm, 5µm (HCA050U046X300AHA)
 Mobile phase: 150 mM sodium phosphate buffer (pH 7.0)
 Flow rate: 0.35 mL/min
 Detection: 214 nm
 Column temperature: 23 °C

1. Thyroglobulin (1.0 mg/mL), 670 kD
2. BSA dimer, 132 kD
3. BSA (1.0 mg/mL), 66 kD
4. Ribonuclease A (1.0 mg/mL), 13.7 kD
5. Uracil (2.5 µg/mL), 120 kD.

Ordering information

Packings	Product Code	Particle size	diameter × length
X3010	HCA030U046X050AAA	3µm	4.6×50mm
X3010	HCA030U046X150AAA	3µm	4.6×150mm
X3010	HCA030U046X250AAA	3µm	4.6×250mm
X3010	HCA030U046X300AAA	3µm	4.6×300mm
X3010	HCA030U078X050AAA	3µm	7.8×50mm
X3010	HCA030U078X150AAA	3µm	7.8×150mm
X3010	HCA030U078X250AAA	3µm	7.8×250mm
X3010	HCA030U078X300AAA	3µm	7.8×300mm
X3015	HCA030U046X050ABA	3µm	4.6×50mm
X3015	HCA030U046X150ABA	3µm	4.6×150mm
X3015	HCA030U046X250ABA	3µm	4.6×250mm
X3015	HCA030U046X300ABA	3µm	4.6×300mm
X3015	HCA030U078X050ABA	3µm	7.8×50mm
X3015	HCA030U078X150ABA	3µm	7.8×150mm
X3015	HCA030U078X250ABA	3µm	7.8×250mm
X3015	HCA030U078X300ABA	3µm	7.8×300mm
X3030	HCA030U046X050ACA	3µm	4.6×50mm

Ordering information

Packings	Product Code	Particle size	diameter × length
X3030	HCA030U046X150ACA	3μm	4.6×150mm
X3030	HCA030U046X250ACA	3μm	4.6×250mm
X3030	HCA030U046X300ACA	3μm	4.6×300mm
X3030	HCA030U078X050ACA	3μm	7.8×50mm
X3030	HCA030U078X150ACA	3μm	7.8×150mm
X3030	HCA030U078X250ACA	3μm	7.8×250mm
X3030	HCA030U078X300ACA	3μm	7.8×300mm
X5010	HCA050U046X050ADA	5μm	4.6×50mm
X5010	HCA050U046X150ADA	5μm	4.6×150mm
X5010	HCA050U046X250ADA	5μm	4.6×250mm
X5010	HCA050U046X300ADA	5μm	4.6×300mm
X5010	HCA050U078X050ADA	5μm	7.8×50mm
X5010	HCA050U078X150ADA	5μm	7.8×150mm
X5010	HCA050U078X250ADA	5μm	7.8×250mm
X5010	HCA050U078X300ADA	5μm	7.8×300mm
X5015	HCA050U046X050AEA	5μm	4.6×50mm
X5015	HCA050U046X150AEA	5μm	4.6×150mm
X5015	HCA050U046X250AEA	5μm	4.6×250mm
X5015	HCA050U046X300AEA	5μm	4.6×300mm
X5015	HCA050U078X050AEA	5μm	7.8×50mm
X5015	HCA050U078X150AEA	5μm	7.8×150mm
X5015	HCA050U078X250AEA	5μm	7.8×250mm
X5015	HCA050U078X300AEA	5μm	7.8×300mm
X5030	HCA050U046X050AFA	5μm	4.6×50mm
X5030	HCA050U046X150AFA	5μm	4.6×150mm
X5030	HCA050U046X250AFA	5μm	4.6×250mm
X5030	HCA050U046X300AFA	5μm	4.6×300mm
X5030	HCA050U078X050AFA	5μm	7.8×50mm
X5030	HCA050U078X150AFA	5μm	7.8×150mm
X5030	HCA050U078X250AFA	5μm	7.8×250mm
X5030	HCA050U078X300AFA	5μm	7.8×300mm
X5050	HCA050U046X050AFA	5μm	4.6×50mm
X5050	HCA050U046X150AFA	5μm	4.6×150mm
X5050	HCA050U046X250AFA	5μm	4.6×250mm
X5050	HCA050U046X300AFA	5μm	4.6×300mm
X5050	HCA050U078X050AFA	5μm	7.8×50mm
X5050	HCA050U078X150AFA	5μm	7.8×150mm
X5050	HCA050U078X250AFA	5μm	7.8×250mm
X5050	HCA050U078X300AFA	5μm	7.8×300mm
X5100	HCA050U046X050AHA	5μm	4.6×50mm
X5100	HCA050U046X150AHA	5μm	4.6×150mm
X5100	HCA050U046X250AHA	5μm	4.6×250mm
X5100	HCA050U046X300AHA	5μm	4.6×300mm
X5100	HCA050U078X050AHA	5μm	7.8×50mm
X5100	HCA050U078X150AHA	5μm	7.8×150mm
X5100	HCA050U078X250AHA	5μm	7.8×250mm
X5100	HCA050U078X300AHA	5μm	7.8×300mm
X5200	HCA050U046X050AJA	5μm	4.6×50mm
X5200	HCA050U046X150AJA	5μm	4.6×150mm
X5200	HCA050U046X250AJA	5μm	4.6×250mm
X5200	HCA050U046X300AJA	5μm	4.6×300mm
X5200	HCA050U078X050AJA	5μm	7.8×50mm

Packings	Product Code	Particle size	diameter × length
X5200	HCA050U078X150AJA	5μm	7.8×150mm
X5200	HCA050U078X250AJA	5μm	7.8×250mm
X5200	HCA050U078X300AJA	5μm	7.8×300mm
S3010	HCA030U046X050AKA	3μm	4.6×50mm
S3010	HCA030U046X150AKA	3μm	4.6×150mm
S3010	HCA030U046X250AKA	3μm	4.6×250mm
S3010	HCA030U046X300AKA	3μm	4.6×300mm
S3010	HCA030U078X050AKA	3μm	7.8×50mm
S3010	HCA030U078X150AKA	3μm	7.8×150mm
S3010	HCA030U078X250AKA	3μm	7.8×250mm
S3010	HCA030U078X300AKA	3μm	7.8×300mm
S3015	HCA030U046X050ALA	3μm	4.6×50mm
S3015	HCA030U046X150ALA	3μm	4.6×150mm
S3015	HCA030U046X250ALA	3μm	4.6×250mm
S3015	HCA030U046X300ALA	3μm	4.6×300mm
S3015	HCA030U078X050ALA	3μm	7.8×50mm
S3015	HCA030U078X150ALA	3μm	7.8×150mm
S3015	HCA030U078X250ALA	3μm	7.8×250mm
S3015	HCA030U078X300ALA	3μm	7.8×300mm
S3030	HCA030U046X050AMA	3μm	4.6×50mm
S3030	HCA030U046X150AMA	3μm	4.6×150mm
S3030	HCA030U046X250AMA	3μm	4.6×250mm
S3030	HCA030U046X300AMA	3μm	4.6×300mm
S3030	HCA030U078X050AMA	3μm	7.8×50mm
S3030	HCA030U078X150AMA	3μm	7.8×150mm
S3030	HCA030U078X250AMA	3μm	7.8×250mm
S3030	HCA030U078X300AMA	3μm	7.8×300mm
S5015	HCA050U046X050ANA	5μm	4.6×50mm
S5015	HCA050U046X150ANA	5μm	4.6×150mm
S5015	HCA050U046X250ANA	5μm	4.6×250mm
S5015	HCA050U046X300ANA	5μm	4.6×300mm
S5015	HCA050U078X050ANA	5μm	7.8×50mm
S5015	HCA050U078X150ANA	5μm	7.8×150mm
S5015	HCA050U078X250ANA	5μm	7.8×250mm
S5015	HCA050U078X300ANA	5μm	7.8×300mm
S5030	HCA050U046X050AOA	5μm	4.6×50mm
S5030	HCA050U046X150AOA	5μm	4.6×150mm
S5030	HCA050U046X250AOA	5μm	4.6×250mm
S5030	HCA050U046X300AOA	5μm	4.6×300mm
S5030	HCA050U078X050AOA	5μm	7.8×50mm
S5030	HCA050U078X150AOA	5μm	7.8×150mm
S5030	HCA050U078X250AOA	5μm	7.8×250mm
S5030	HCA050U078X300AOA	5μm	7.8×300mm
S5050	HCA050U046X050APA	5μm	4.6×50mm
S5050	HCA050U046X150APA	5μm	4.6×150mm
S5050	HCA050U046X250APA	5μm	4.6×250mm
S5050	HCA050U046X300APA	5μm	4.6×300mm
S5050	HCA050U078X050APA	5μm	7.8×50mm
S5050	HCA050U078X150APA	5μm	7.8×150mm
S5050	HCA050U078X250APA	5μm	7.8×250mm
S5050	HCA050U078X300APA	5μm	7.8×300mm




CruxPoly and ElfPoly polymer matrix SEC column

CruxPoly and ElfPoly series columns are based on highly cross-linked polystyrene / divinylbenzene (PS/DVB) particles with very narrow particle size and pore size distributions. Their uniform pore size distribution offers near linear calibration curves covering wide molecular weight range. Compared to silica gel matrix size exclusion column, polymer matrix is stable to resist wide range of solvents, and have low background noise for light scattering detection. They are used to separate polystyrene, polyacrylate, polysiloxane etc.

CruxPoly series columns

PH range: 1 – 14; maximum temperature: 145 °C . Mobile phase is organic solvents (THF, DMAC, TCB, NMP etc.).



packing model	aperture diameter	Partical size	Molecular weight exclusion limit
CruxPoly T100	100Å	5µm,10µm	100 - 100,000
CruxPoly T300	300Å	5µm,10µm	500 - 250,000
CruxPoly T500	500Å	5µm,10µm	1,000 - 750,000
CruxPoly T1000	1000Å	5µm,10µm	5,000 - 2,500,000
CruxPoly TMIX	100 - 1000Å	5µm,10µm	5,000 - 2,500,000

Ordering information

Packings	Product Code	Particle size	diameter × length
CruxPoly T100	HCA050U046X300BAA	5µm	4.6×300mm
CruxPoly T100	HCA050U078X050BAA	5µm	7.8×50mm
CruxPoly T100	HCA050U078X300BAA	5µm	7.8×300mm
CruxPoly T100	HCA100U046X300BBA	10µm	4.6×300mm
CruxPoly T100	HCA100U078X300BBA	10µm	7.8×300mm
CruxPoly T300	HCA050U046X050BCA	5µm	4.6×50mm
CruxPoly T300	HCA050U046X300BCA	5µm	4.6×300mm
CruxPoly T300	HCA050U078X050BCA	5µm	7.8×50mm
CruxPoly T300	HCA050U078X300BCA	5µm	7.8×300mm
CruxPoly T500	HCA050U078X300BEA	5µm	4.6×300mm
CruxPoly T500	HCA050U078X050BEA	5µm	7.8×50mm
CruxPoly T500	HCA050U078X300BEA	5µm	7.8×300mm
CruxPoly T1000	HCA050U046X300BGA	5µm	4.6×300mm
CruxPoly T1000	HCA050U078X300BGA	5µm	7.8×300mm

Preparative column

Preparative columns and semi-preparative columns have a variety of packings, particle size as 5 and 10µm.

Silica gel matrix:

C18 C18-BIO C8
C4 Phenyl
Silica CN NH2
Diol HILIC
HILIC(2)
HILIC(3) SAX
SCX

Polymer matrix:

Sep RP1 Sep RP3
Sep SP Sep SAX
Sep WAX Sep SCX
Sep WCX

Size exclusion chromatography:

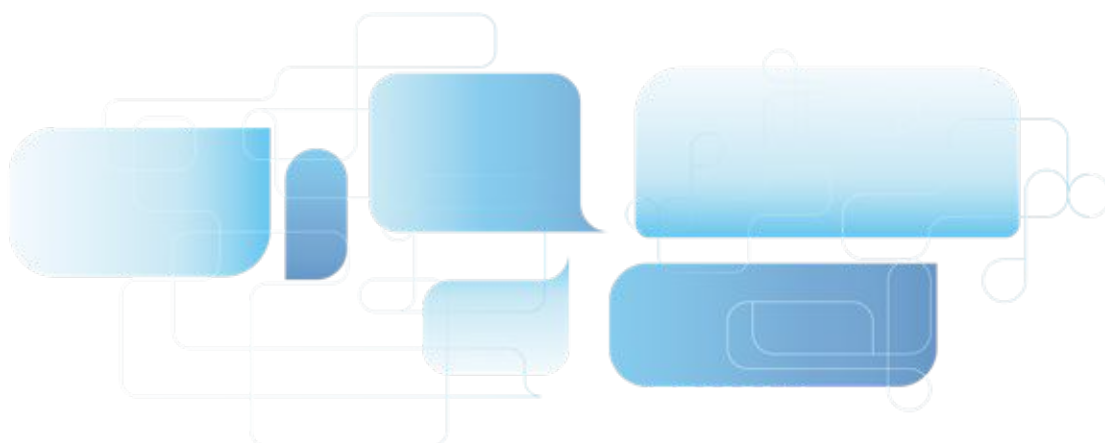
Gel X5010
Gel X5015
Gel X5030
Gel X5050
Gel X5100
Gel X5200
Gel S5015
Gel S5030
Gel S5050
CruxPoly T100
CruxPoly T300
CruxPoly T500
CruxPoly T1000
CruxPoly TMIX
ElfPoly Z300
ElfPoly Z500
ElfPoly Z1000
ElfPoly Z2000
ElfPoly ZMIX

Preparative column and semi-preparative column dimensions as:

50mm x 10.0mm
100mm x 10.0mm
150mm x 10.0mm
250mm x 10.0mm
10mm x 21.2mm
50mm x 21.2mm
100mm x 21.2mm
150mm x 21.2mm
250mm x 21.2mm
50mm x 30.0mm
100mm x 30.0mm
150mm x 30.0mm
250mm x 30.0mm
50mm x 50.0mm
150mm x 50.0mm
250mm x 50.0mm



The description and characteristics of preparative and semi-preparative similar to analytical column. Please contact GVS salesman or inquire for price and delivery date.

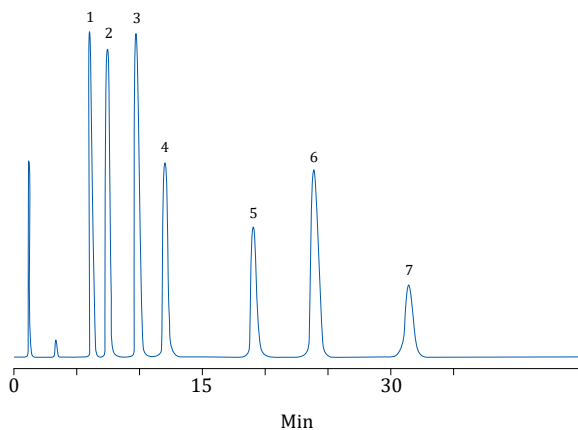


Application: Drugs

Tricyclic antidepressants

No.1209001

- | | |
|------------------|------------------|
| 1. Protriptyline | 5. Imipramine |
| 2. Desipramine | 6. Amitriptyline |
| 3. Nortriptyline | 7. Trimipramine |
| 4. Doxepin | |

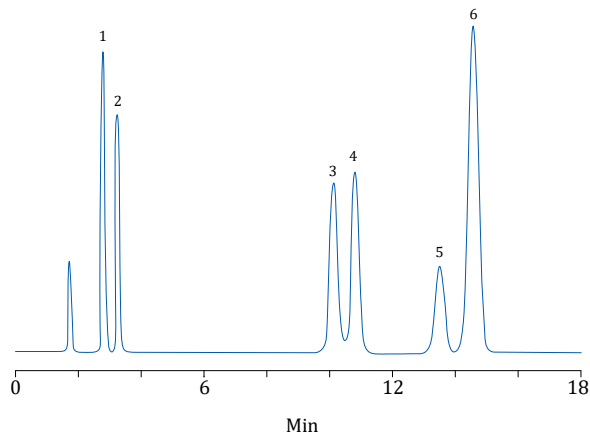


Column: C18-WP 4.6 × 150mm, 5µm
(HCA050U046X15072A)
Mobile phase: methanol / 20 mM KH₂PO₄ - K₂HPO₄ buffer
(pH 7.0) (70/30)
Flow rate: 1.2 mL/min
Detection: 240 nm
Column temperature: 30 °C

Cough and cold medicine ingredients

No.1209003

- | | |
|-----------------------------|----------------|
| 1. Acetaminophen | 4. Aspirine |
| 2. Caffeine | 5. Ethenzamide |
| 3. Chlorpheniramine Maleate | 6. Bucetin |

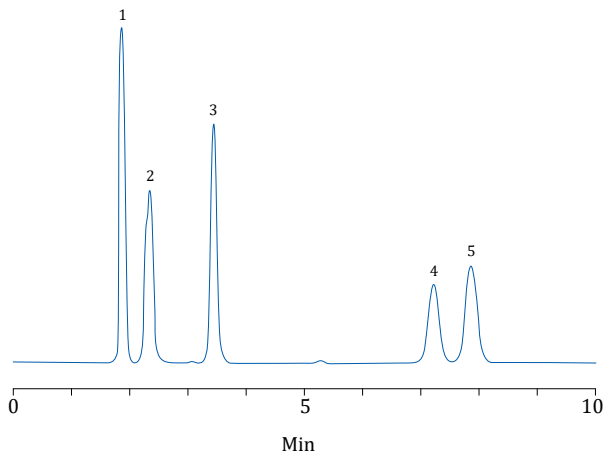


Column: C18-WP 4.6 × 150mm, 5µm
(HCA050U046X15072A)
Mobile phase: methanol / 50 mM NH₄H₂PO₄ - H₃PO₄
buffer (pH 2.5) (20/80)
Flow rate: 1.0mL/min
Detection: 235 nm
Column temperature: 40 °C

Beta-blockers

No.1209002

- | | |
|---------------|----------------|
| 1. Atenolol | 4. Propranolol |
| 2. Nadolol | 5. Alprenolol |
| 3. Metoprolol | |

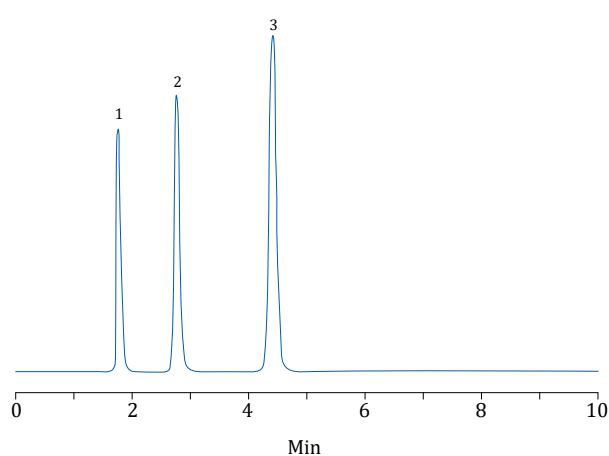


Column: C18-WP 4.6 × 150mm, 5µm
(HCA050U046X15072A)
Mobile phase: methanol / 20 mM KH₂PO₄ - K₂HPO₄ buffer
(pH 7.0) (70/30)
Flow rate: 1.2 mL/min
Detection: 240 nm
Column temperature: 30 °C

Procainamide

No.1209004

- | |
|-------------------------|
| 1. Uracil |
| 2. Procainamide |
| 3. N-Acetylprocainamide |

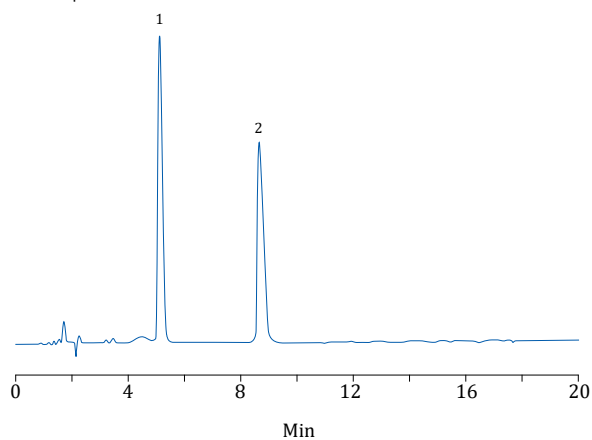


Column: C18-WP 4.6 × 150mm, 5µm
(HCA050U046X15072A)
Mobile phase: methanol / 50 mM NH₄H₂PO₄ - H₃PO₄ buffer
(pH 2.5) (20/80)
Flow rate: 1.0mL/min
Detection: 235 nm
Column temperature: 40 °C

Anticholinergics

No.1209005

1. Scopolamine Hydrobromide
2. Atropine Sulfate

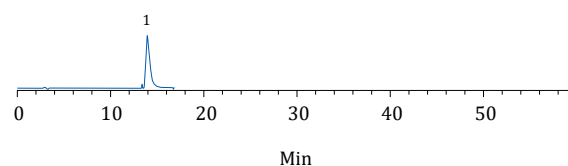


Column: C18-WP 4.6 × 150mm, 5μm
(HCA050U046X15072A)
Mobile phase: methanol / 30 mM NaH₂PO₄ buffer (15/85)
Flow rate: 1.0 mL/min
Detection: 254 nm
Column temperature: 40 °C

Glycyrrhizin

No.1209007

1. Glycyrrhizin



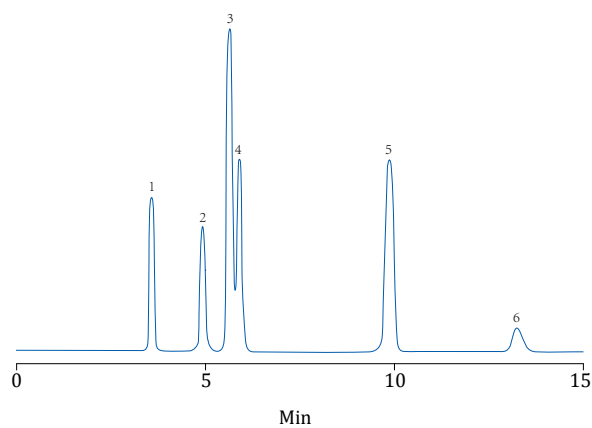
Column: C18-WP 4.6 * 250mm, 5μm
(HCA050U046X25072A)
Mobile phase: acetonitrile / 0.1% acetic acid (38/62)
Flow rate: 1.0mL/min
Detection: 254 nm
Column temperature: 30 °C



Non-steroidal anti-inflammatory drugs

No.1209006

1. Piroxicam
2. Sulindac
3. Ketoprofen
4. Naproxen
5. Flurbiprofen
6. Ibuprofen

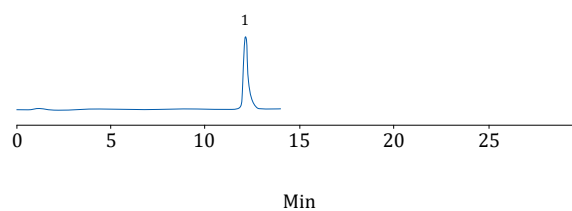


Column: C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
Mobile phase: acetonitrile / 1% acetic acid buffer solution (65/35)
Flow rate: 1.0 mL/min
Detection: 260 nm
Column temperature: 40 °C

Matrine

No.1209008

1. Matrine



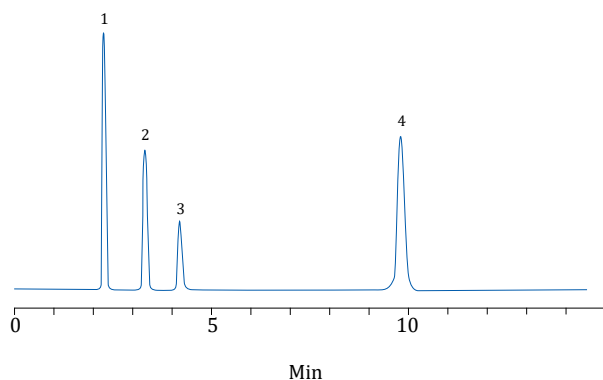
Column: C18-WP 4.6 * 250mm, 5μm
(HCA050U046X25072A)
Mobile phase: acetonitrile / 0.1% phosphoric acid (triethylamine adjusted pH 8.0) = 28/72
Flow rate: 2.0mL/min
Detection: 220 nm
Column temperature: 40 °C

Anti-HIV drugs

No.1209009

1. Thymidine
2. d4T

3. AZT-Glucuronide
4. AZT

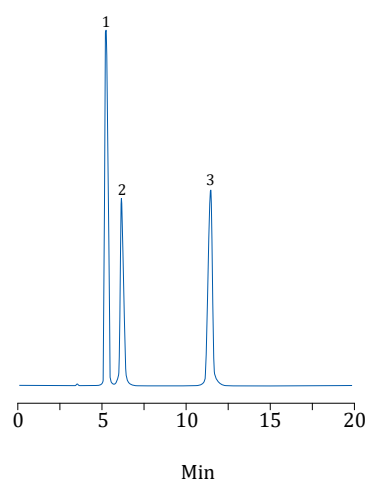


Column: C18-BIO 4.6 × 150mm, 5μm (HCA050U046X15078A)
 Mobile phase: methanol / 20 mM NH₄H₂PO₄ buffer (10/90)
 Flow rate: 1.0 mL/min
 Detection: 260 nm
 Column temperature: 35 °C

Steroids -1

No.1209011

1. Estrone
2. Estradiol
3. Estriol

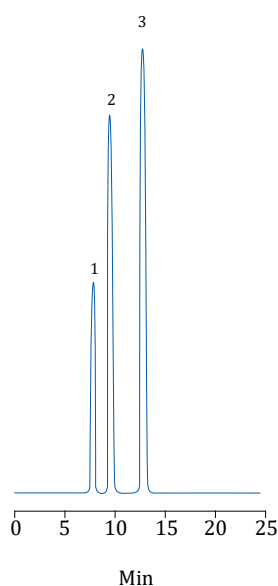


Column: Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
 Mobile phase: n-hexane / ethanol (85/15)
 Flow rate: 1.0mL/min
 Detection: 270 nm
 Column temperature: 40 °C

Tricyclic antidepressants

No.1209010

1. Protriptyline
2. Nortriptyline
3. Amitriptyline

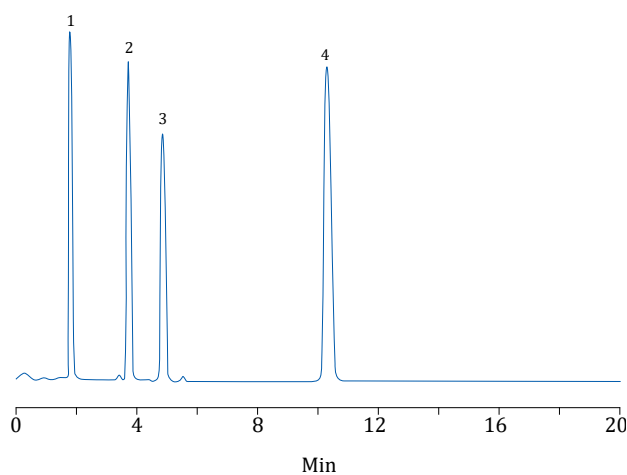


Column: C8 4.6 × 150mm, 5μm (HCA050U046X15075A)
 Mobile phase: methanol / 20 mM K₂HPO₄ buffer (pH 7.0) (80/20)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 40 °C

Steroids -2

No.1209012

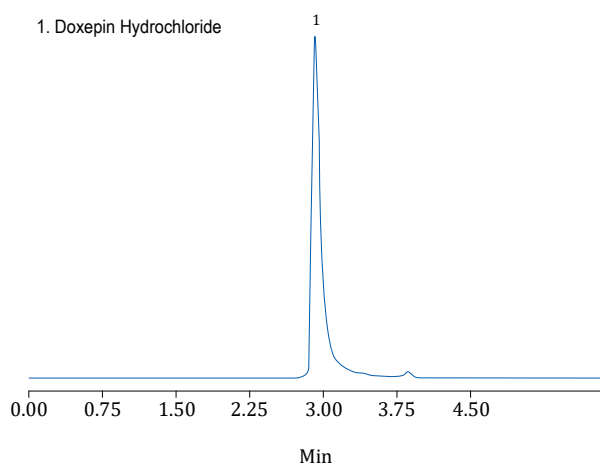
1. Estriol
2. β-Estradiol
3. Estrone
4. Progesterone



Column: C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
 Mobile phase: acetonitrile / water (60/40)
 Flow rate: 1.0mL/min
 Detection: 30 nm
 Column temperature: 35 °C

Doxepin Hydrochloride

No.1209013

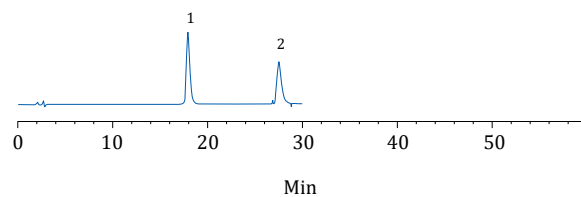


Column: C 18 - W P, 5µm, 250mm x 4.6mm
(HCA050U046X25072A)
Mobile phase: 0.1% triethylamine 0.2 mol / L sodium dihydrogen phosphate: methanol = 65:35 PH = 2.5
Flow rate: 1.0 mL/min
Detection: 254 nm
Column temperature: 50 °C

Deoxyschizandrin schisandrin B

No.1209015

1. Deoxyschizandrin
2. Schisandrin B



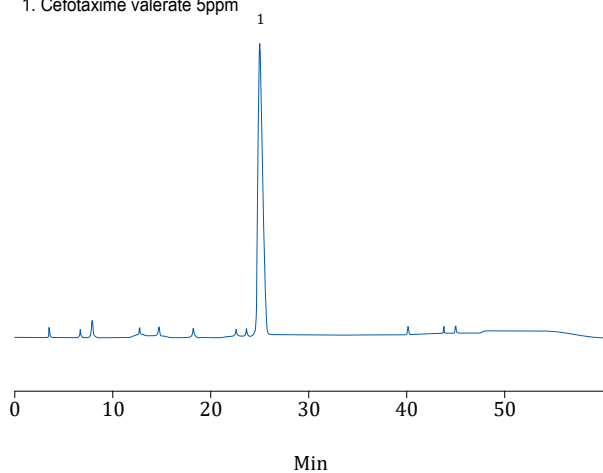
Column: C18-WP 4.6 * 250mm, 5µm (HCA050U046X25072A)
Mobile phase: methanol / water (77/23)
Flow rate: 1.0mL/min
Detection: 254 nm
Column temperature: 30 °C



Cefotaxime valerate

No.1209014

1. Cefotaxime valerate 5ppm



Column: C18-WP 150mm x 4.6, 5 µm
(HCA050U046X15072A)
Mobile phase:

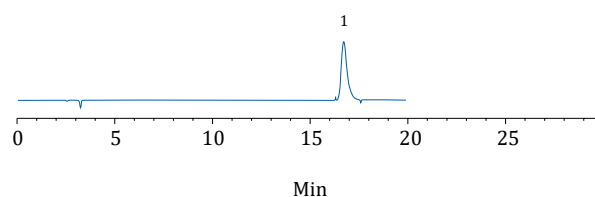
T(min)	Sodium dihydrogen phosphate(pH = 6.25)	methanol
0-7	86	14
7-9	86-82	14-18
9-16	82	18
16-45	82-60	18-40
45-50	60	40
50-55	60-86	40-14
55-60	86	14

Flow rate: 1.0 mL/min
Detection: 235nm
Column temperature: 30 °C

Calcium pantothenate

No.1209016

1. Calcium pantothenate

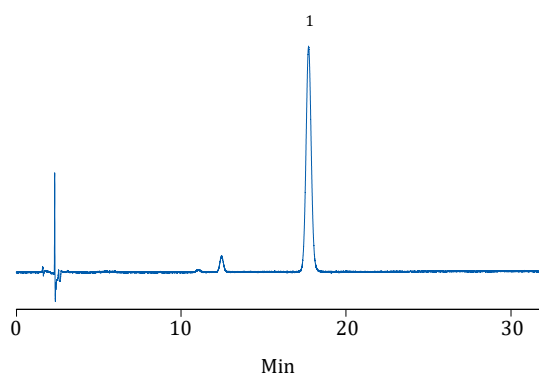


Column: C18-WP 4.6 * 250mm, 5µm (HCA050U046X25072A)
Mobile phase: acetonitrile / 20 mM potassium phosphate dibasic = 5/95
Flow rate: 1.0mL/min
Detection: 200 nm
Column temperature: 30 °C

Cefotaxime Sodium

No.1209017

1. Cefuroxime Sodium

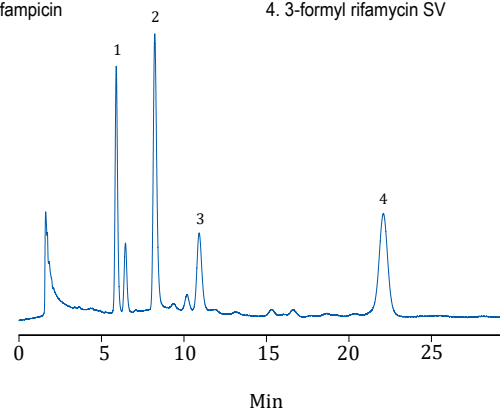


Column: C18 4.6 × 250mm, 5µm (HCA050U046X25071A)
 Mobile phase: sodium acetate - acetic acid buffer solution (pH3.4)
 / acetonitrile = 10/1
 Flow rate: 1.5mL/min
 Detection: 254 nm
 Column temperature: 25 °C

Rifampicin and related substances

No.1209019

1. rifampicin quinone
2. rifampicin
3. N-oxidation of rifampicin
4. 3-formyl rifamycin SV

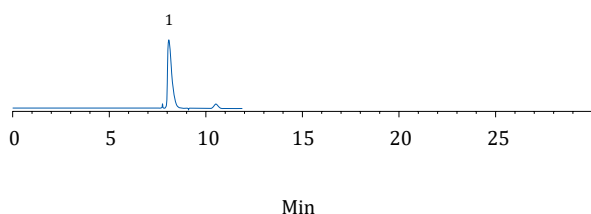


Column: C8 4.6 × 150mm, 5µm (HCA050U046X15075A)
 Mobile phase: methanol / acetonitrile / 0.075mM potassium
 dihydrogen phosphate / 1M citric acid
 (30/30/36/4)
 Flow rate: 1.0mL/min
 Detection: 254 nm
 Column temperature: 25 °C

Taurine

No.1209018

1. taurine

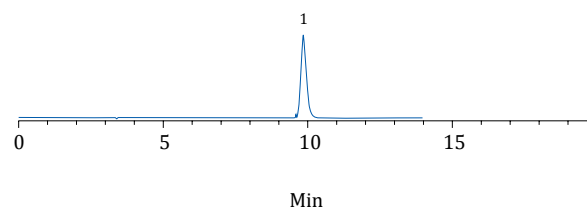


Column: C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
 Mobile phase: methanol / 50mM sodium acetate (37/63)
 Flow rate: 1.0 mL/min
 Detection: 360 nm
 Column temperature: 30 °C

Melatonin

No.1209020

1. melatonin

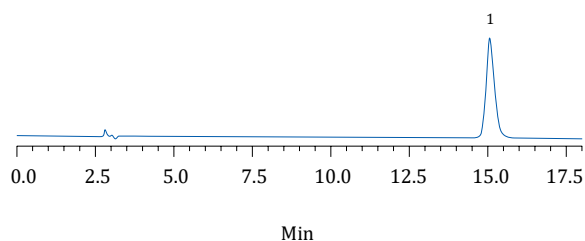


Column: C18-WP 4.6 * 250mm, 5um
 (HCA050U046X25072A)
 Mobile phase: methanol / water +50 mM TFA (45/55)
 Flow rate: 1mL/min
 Detection: 222 nm
 Column temperature: 30°C

Day ephedra

No.1209021

1. day ephedra

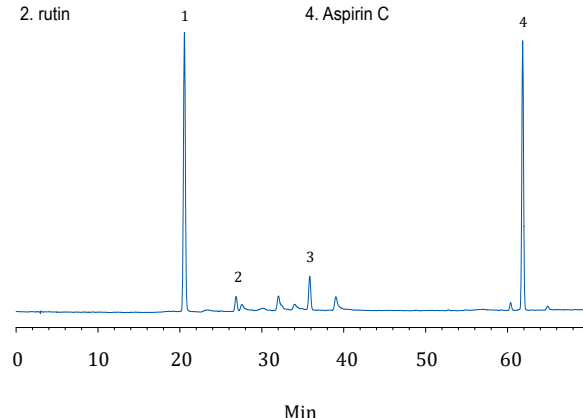


Column: C18-WP 4.6 * 250mm, 5um
(HCA050U046X25072A)
Mobile phase: acetonitrile / water / 0.1% phosphoric acid
(1/2/97)
Flow rate: 1.0 mL/min
Detection: 222 nm
Column temperature: 25 °C

Aspirin C in propolis

No.1209023

1. p-coumaric acid
2. rutin
3. cinnamic acid
4. Aspirin C



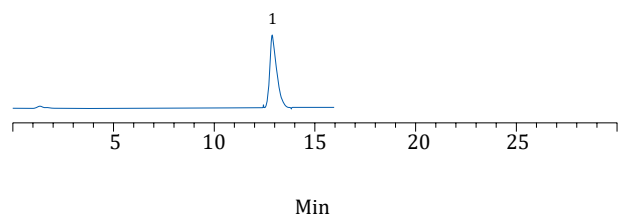
Column: C18-WP 4.6 * 250mm, 5um
(HCA050U046X25072A)
Mobile phase: A: methanol B: water (formic acid adjusted PH = 2.7)
0min 70min 75min
20%A 95%A 80%A
Flow rate: 1mL/min
Detection: 310 nm
Column temperature: 40 °C



Berberine

No.1209022

1. berberine

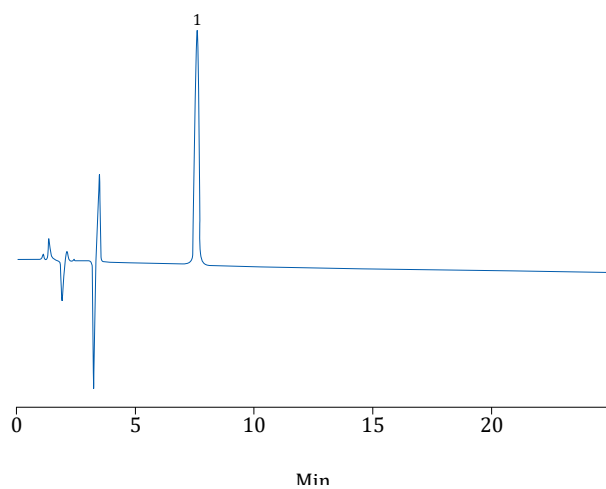


Column: C18-WP 4.6 * 250mm, 5um
(HCA050U046X25072A)
Mobile phase: 12.5mM sodium dodecyl / 12.5mM potassium
dihydrogen phosphate / acetonitrile (25/25/50)
Flow rate: 1.0mL/min
Detection: 345 nm
Column temperature: 25 °C

Nicotinamide

No.1209024

1. Nicotinamide

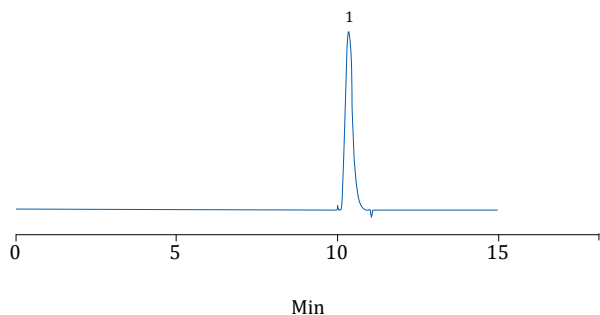


Column: C 18-WP, 5 µm, 150 mm × 4.6 mm,
(HCA050U046X15072A)
Mobile phase: methanol 70 mL, isopropanol, 20 mL,
heptane sulfonate 1 g, was dissolved with
910 mL of water and after mixing using
perchloric acid to adjust to pH 2.1 ±0.1,
filtered through 0.45 µm membrane
Flow rate: 1.0mL/min
Detection: 261 nm
Column temperature: 25 °C

VitB6

No.1209025

1. VitB6

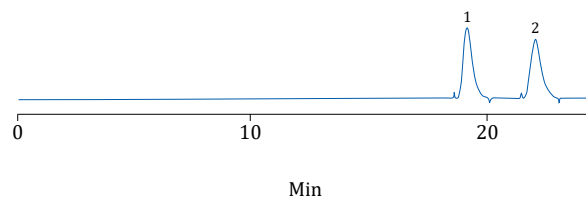


Column: C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
 Mobile phase: methanol / 0.04% pentane sulfonate (use acetic acid to adjust pH3.0) = 15/85
 Flow rate: 1mL/min
 Detection: 291nm
 Column temperature: 30 °C

Psoralen

No.1209027

1. psoralen
 1. isopsoralen

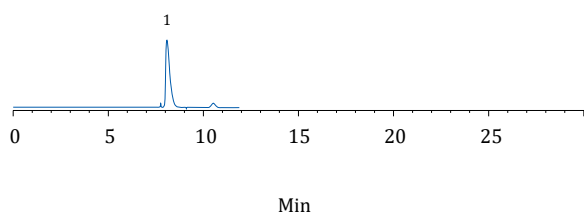


Column: C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
 Mobile phase: methanol / water = 40/60
 Flow rate: 1mL/min
 Detection: 246 nm
 Column temperature: 30 °C

Coenzyme Q

No.1209026

1. taurine

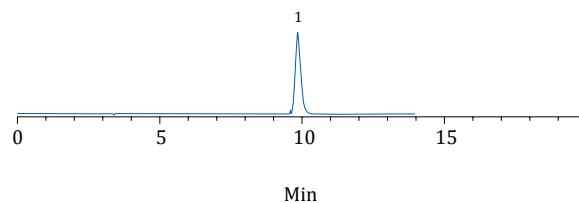


Column: C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
 Mobile phase: methanol / ethanol = 50/50
 Flow rate: 1mL/min
 Detection: 275nm
 Column temperature: 30 °C

Loganin

No.1209028

1. melatonin

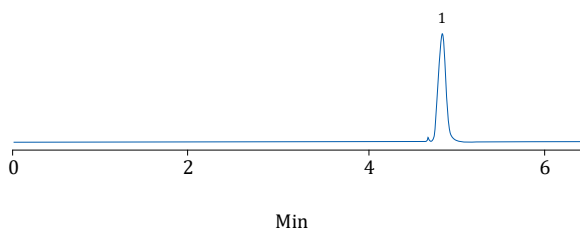


Column: C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
 Mobile phase: methanol / acetonitrile / 0.1% phosphoric acid = 5/9/86
 Flow rate: 1mL/min
 Detection: 236 nm
 Column temperature: 30°C

Paeonol

No.1209029

1. Paeonol

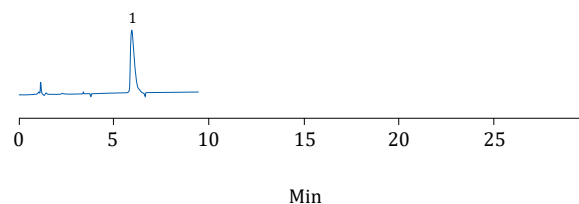


Column: C18-WP 4.6 * 250mm, 5um
(HCA050U046X25072A)
Mobile phase: methanol / water = 70/30
Flow rate: 1.0 mL/min
Detection: 274 nm
Column temperature: 30 °C

Clarithromycin

No.1209031

1. Clarithromycin

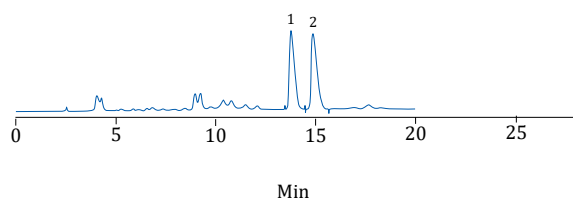


Column: C18-WP 4.6 * 250mm, 5um
(HCA050U046X25072A)
Mobile phase: acetonitrile / phosphate buffer (ph5.5) = 40/60
Flow rate: 1.0 mL/min
Detection: 210 nm
Column temperature: 30 °C

Cefixime

No.1209030

1. E isomer
2. cefixime

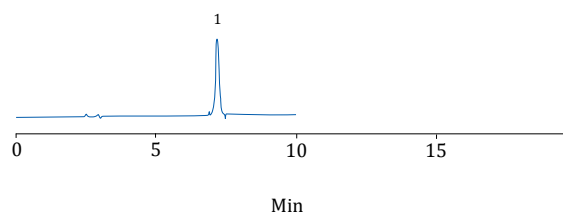


Column: C18-WP 4.6 * 250mm, 5um
(HCA050U046X25072A)
Mobile phase: tetrabutylammonium hydroxide (ph7.0) /
acetonitrile = 72:28
Flow rate: 1.0mL/min
Detection: 254 nm
Column temperature: 30 °C

Paeoniflorin

No.1209032

1. Paeoniflorin

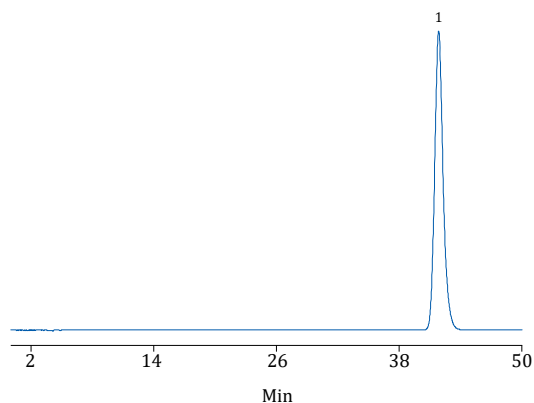


Column: C18-WP 4.6 * 250mm, 5um (HCA050U046X25072A)
Mobile phase: acetonitrile / 0.04% phosphoric acid = 15/85
Flow rate: 1.0mL/min
Detection: 230nm
Column temperature: 30 °C

Carbamazepine

No.1209033

1. Carbamazepine

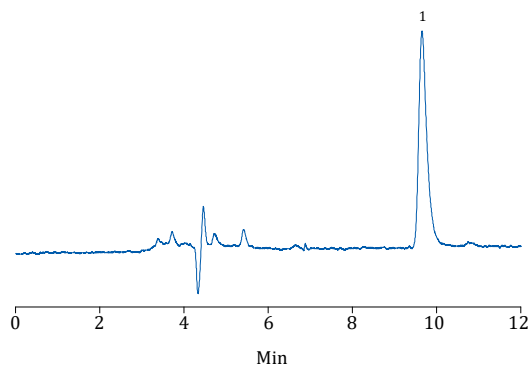


Column: CN 4.6 × 250mm, 5μm (HCA050U046X25033A)
 Mobile phase: methanol / water / trifluoroacetic acid (12/85/3)
 Flow rate: 1.0mL/min
 Detection: 230nm
 Column temperature: 25 °C

Domiphen bromide

No.1209035

1. Domiphen bromide

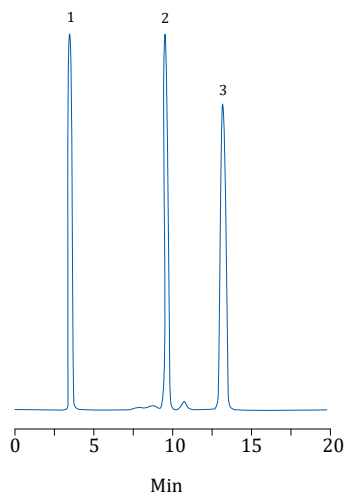


Column: SCX 4.6 × 250mm, 5μm (HCA050U046X25033A)
 Mobile phase: methanol / 50mM ammonium acetate (80/20)
 Flow rate: 0.7mL/min
 Detection: 274 nm
 Column temperature: 25 °C

Acetylacetone

No.1209034

1. Acetylacetone
2. 1-Nitronaphthalene
3. Naphthalene

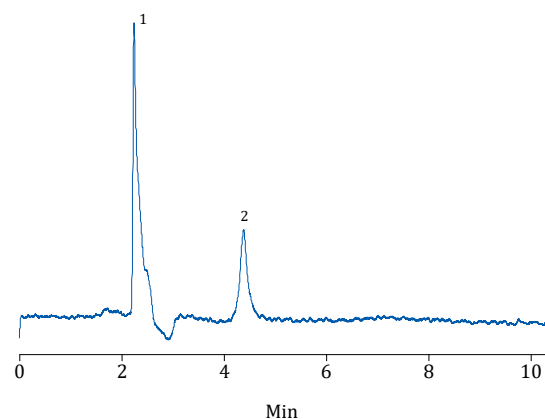


Column: C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
 Mobile phase: 30mM Na3PO4 buffer (Use H3PO4 to adjust pH2.5)
 Flow rate: 1.0mL/min
 Detection: 254nm
 Column temperature: 40 °C

Methotrexate

No.1209036

1. Methanol
2. Methotrexate



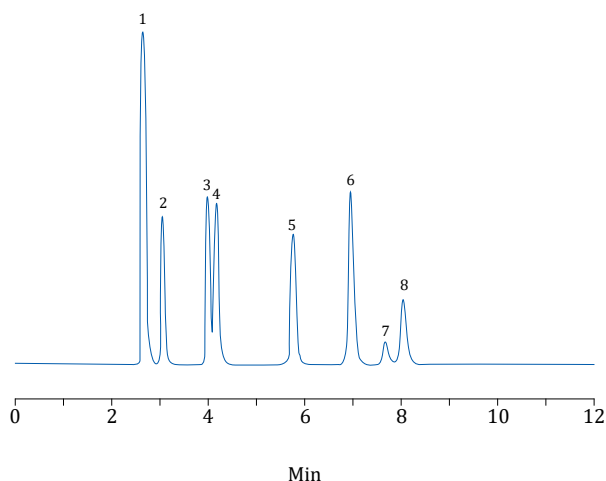
Column: HILIC 4.6 × 150mm, 5μm (HCA050U046X15031A)
 Mobile phase: acetonitrile / 10mM ammonium acetate (90/10)
 Flow rate: 1.0mL/min
 Detection: 306 nm
 Column temperature: 25°C

Application: Foods

Water-soluble vitamins

No.1209037

- | | |
|-------------------|-------------------------|
| 1. Vitamin C | 5. Pyridoxal |
| 2. Vitamin B13 | 6. Pyridoxine |
| 3. Nicotinic acid | 7. Calcium pantothenate |
| 4. Nicotinamide | 8. Thiamin |

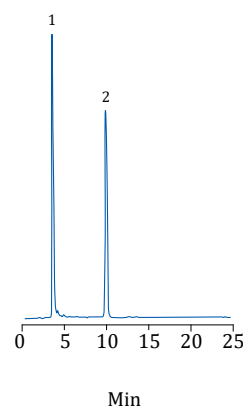


Column: C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
 Mobile phase: acetonitrile / 20mM H3PO4 +5 mM pentane sulfonate buffer (8/92)
 Flow rate: 1.0 mL/min
 Detection: 210 nm
 Column temperature: 40 °C

Vitamin B

No.1209039

1. Thiamin HCl
2. Riboflavin



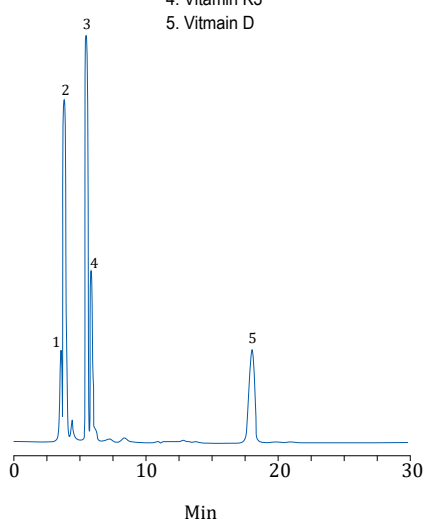
Column: C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
 Mobile phase: acetonitrile / 10mM Na3PO4 buffer (adjust to pH 5.0) =15/85
 Flow rate: 1.0mL/min
 Detection: 254 nm
 Column temperature: 40 °C



Fat-soluble vitamins

No.1209038

- | | |
|-----------------|---------------|
| 1. VA palmitate | 4. Vitamin K3 |
| 2. Vitamin K1 | 5. Vitamin D |
| 3. Vitamin E | |

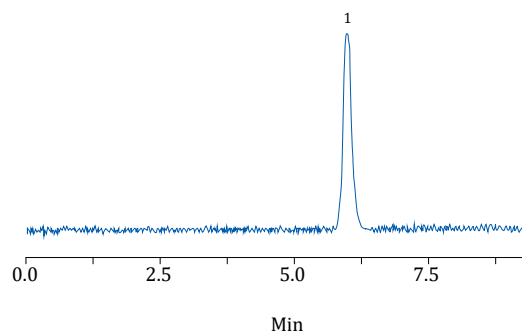


Column: Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
 Mobile phase: hexane / chloroform (60/40)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 25 °C

Citrus red No. 2 in juice

No.1209040

1. Citrus red No. 2



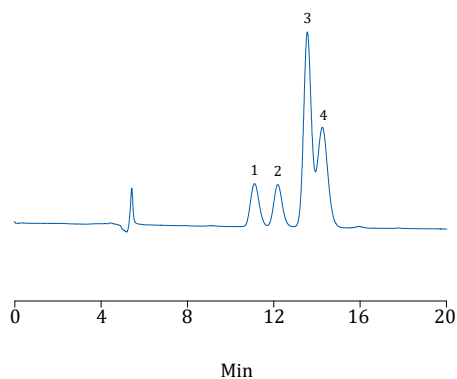
Column: C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
 Mobile phase: acetonitrile / water (80/20)
 Flow rate: 1.0mL/min
 Detection: 500 nm
 Column temperature: 35 °C

Carbohydrate -1

No.1209041

1. Glucose
2. L-xylose

3. Fructose
4. Lyxose



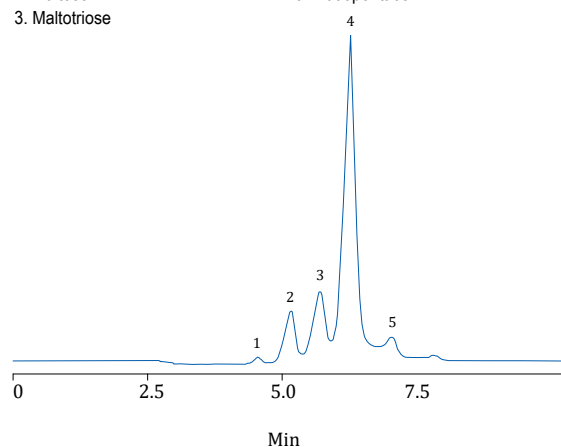
Column: Sep Ca-H 7.8 × 300mm, 5μm (HCA050U078X300C3A)
 Mobile phase: water
 Flow rate: 0.6mL/min
 Detection: 192nm
 Column temperature: 85 °C

Carbohydrate -3

No.1209043

1. Glucose
2. Maltose
3. Maltotriose

4. Maltotetraose
5. Matlopentaos



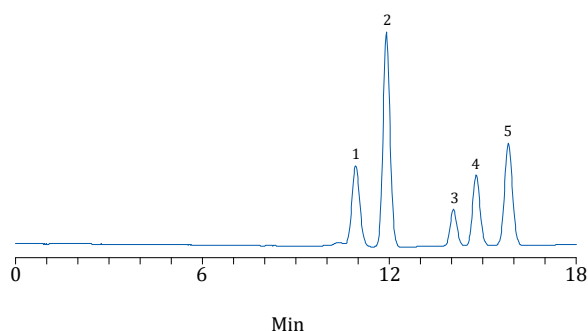
Column: NH₂ 4.6 × 150mm, 5μm (HCA050U046X15077A)
 Mobile phase: acetonitrile / water (50/50)
 Flow rate: 1.0mL/min
 Detection: RID
 Column temperature: 40°C

Carbohydrate -2

No.1209042

1. Maltotriose
2. Maltose
3. Glucose

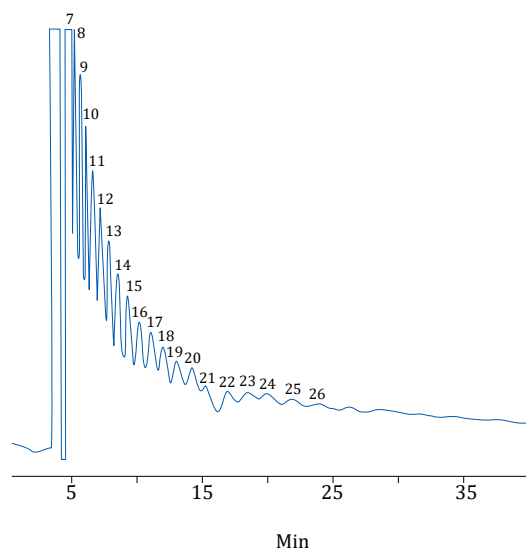
4. Mannose
5. Fructose



Column: Sep Ca-H 7.8 × 300mm, 5μm (HCA050U078X300C3A)
 Mobile phase: water
 Flow rate: 0.6 mL / min
 Detection: 192nm
 Column temperature: 85 °C

Isomaltooligosaccharide

No.1209044

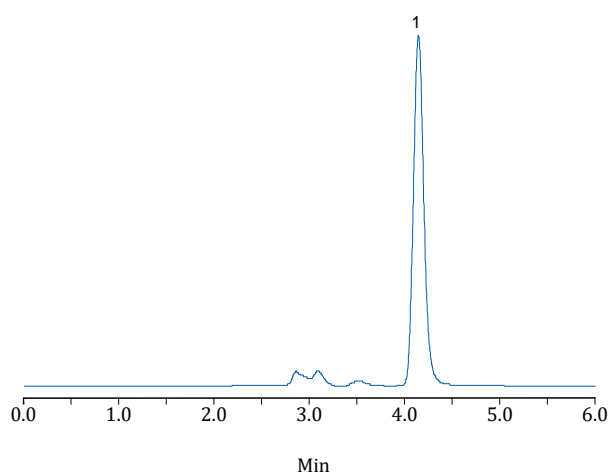


Column: C4 4.6 × 150mm, 5μm (HCA050U046X15079A)
 Mobile phase: methanol / water (2.5/97.5)
 Flow rate: 1.0mL/min
 Detection: RID
 Column temperature: 40°C

Melamine

No.1209045

1. Melamine

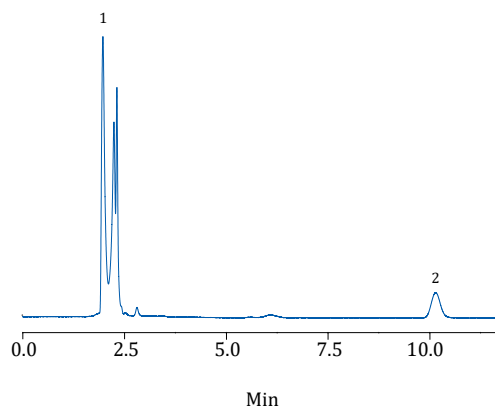


Column: HILIC (3) 4.6 × 250mm, 5μm (HCA050U046X25027A)
 Mobile phase: acetonitrile / 10mM ammonium acetate (90/10)
 Flow rate: 1.0mL/min
 Detection: 240nm
 Column temperature: 25°C

Melamine in raw milk (according to GB / T 22400-2008)

No.1209047

1. Impurity 2. Melamine



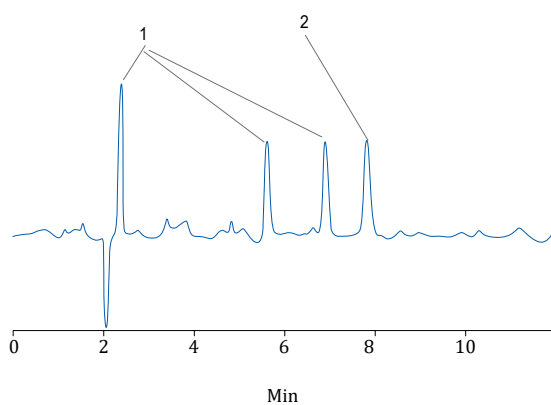
Column: sil SCX 4.6 × 250mm, 5μm (HCA050U046X25045A)
 Mobile phase: acetonitrile / 50mM KH₂PO₄ buffer (pH 3.0) (30/70)
 Flow rate: 1.5mL/min
 Detection: 240nm
 Column temperature: 25°C



Melamine in Milk Powder

No.1209046

1. Milk impurities 2. Melamine

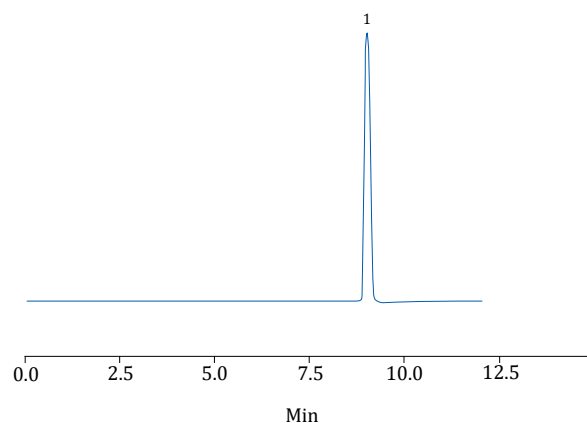


Column: C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
 Mobile phase: 10mM citrate buffer +10 mM sodium hexane solution / acetonitrile (90/10)
 Flow rate: 1.0 mL / min
 Detection: 240nm
 Column temperature: 40°C

Furosine

No.1209048

1. Furosine

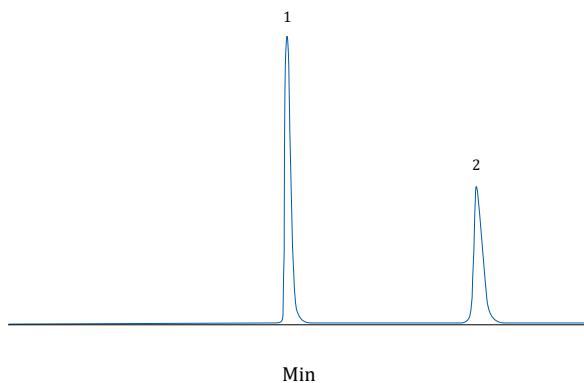


Column: C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
 Mobile phase: A = 0.1% TFA aqueous solution; B = 0.1% TFA acetonitrile
 Gradient: 0min: 1%B, 25min: 21%B
 Flow rate: 1mL/min
 Detection: 280nm
 Column temperature: room temperature

Vanillin and ethyl vanillin

No.1209049

1. Vanillin
2. Ethyl vanillin

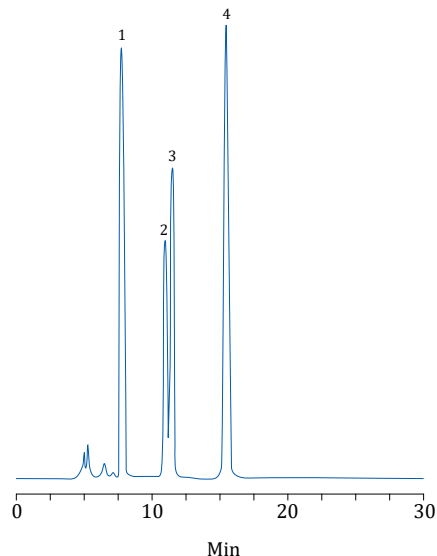


Column: C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
 Mobile phase: acetonitrile / 0.02M sodium dihydrogen phosphate (PH4.0) = 30/70
 Flow rate: 1.0mL/min
 Detection: 276nm
 Column temperature: 30 °C

Tocopherol isomers

No.1209051

1. α-Tocopherol
2. β-Tocopherol
3. γ-Tocopherol
4. δ-Tocopherol

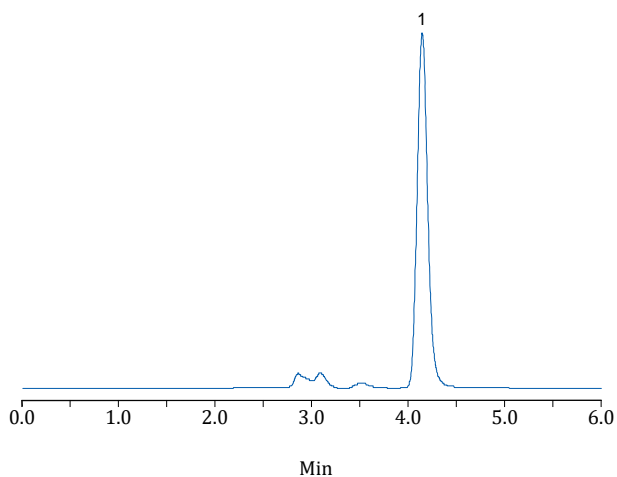


Column: Silica 4.6 × 150mm, 5μm (HCA050U046X15076A)
 Mobile phase: hexane / ethanol (99/1)
 Flow rate: 0.7mL/min
 Detection: 280nm
 Column temperature: 40°C

Tocopherol isomers

No.1209050

1. Tocopherol isomers

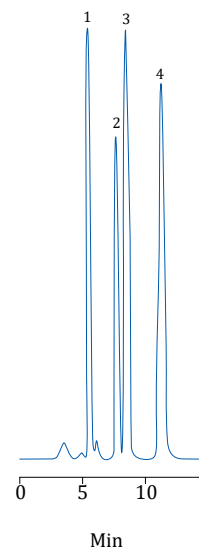


Column: HILIC (3) 4.6 × 250mm, 5μm (HCA050U046X25072A)
 Mobile phase: acetonitrile / 10mM ammonium acetate (90/10)
 Flow rate: 1.0 mL / min
 Detection: 240nm
 Column temperature: 25 °C

Tocopherol

No.1209052

1. α-Tocopherol
2. β-Tocopherol
3. γ-Tocopherol
4. δ-Tocopherol

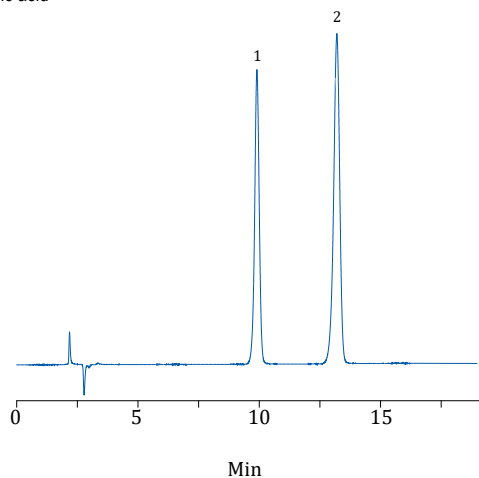


Column: NH₂ 4.6 × 150mm, 5μm (HCA050U046X15076A)
 Mobile phase: hexane / ethyl acetate (70/30)
 Flow rate: 1.0mL/min
 Detection: 295nm
 Column temperature: 40°C

Benzoic acid, sorbic acid

No.1209053

1. Benzoic Acid
2. Sorbic acid

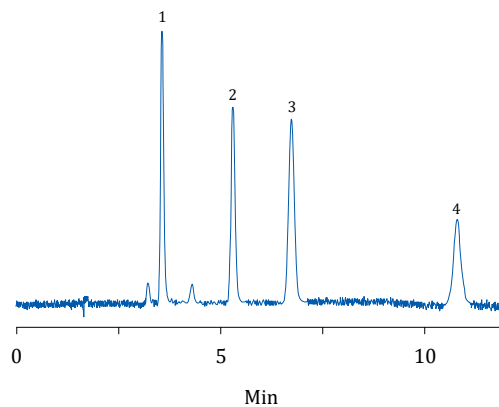


Column: C18-WP 250mm * 4,6,5 μ m
(HCA050U046X25072A)
Mobile phase: 20mM ammonium acetate / methanol (90/10)
Flow rate: 1.0mL/min
Detection: 230nm
Column temperature: 25°C

Sudan in chili sauce

No.1209055

1. Sudan I
2. Sudan II
3. Sudan III
4. Sudan IV



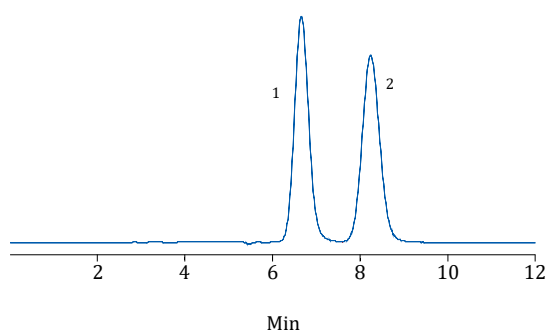
Column: C18-WP 4.6 \times 150mm, 5 μ m (HCA050U046X15072A)
Mobile phase: acetonitrile / water (95/5)
Flow rate: 1.0mL/min
Detection: 500nm
Column temperature: 35°C



Sorbitol and mannitol

No.1209054

1. Mannitol
2. Sorbitol

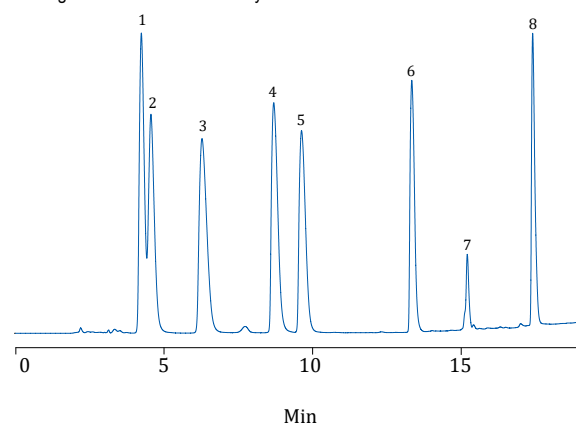


Column: Sep Ca-M 4.6 \times 250mm, 10 μ m
(HCA100U046X250C4A)
Mobile phase: water
Flow rate: 0.5 mL/min
Detection: RID
Column temperature: 80°C

Synthetic colorants

No.1209056

1. New Red
2. Tartrazine
3. Amaranth
4. Indigotine
5. Ponceau 4RC
6. Sunset Yellow
7. Brilliant Blue FCF
8. Erythrosin B disodium salt



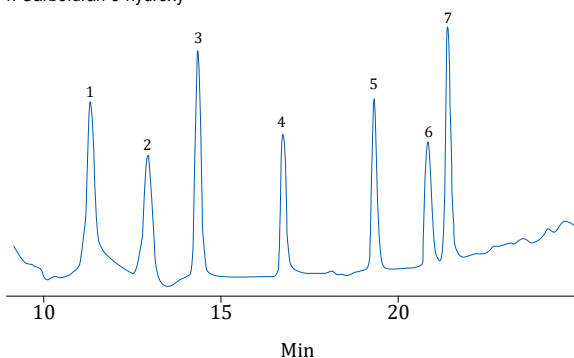
Column: C18-WP 4.6 \times 250mm, 5 μ m (HCA050U046X25072A)
Mobile phase: A: methanol; B: 20mM ammonium acetate (pH 4.0)
0min B: 80%; 5min B: 65%; 12min B: 2%
Flow rate: 1.0mL/min
Detection: 254nm
Column temperature: 25°C

Application: Pesticide

Carbamate pesticide in pepper

No.1209057

1. Aldicarb-sulfoxide
2. Aldicarb-sulfone
3. Methomyl
4. Carbofuran-3-hydroxy
5. Aldicarb
6. Carbofuran
7. Carbaryl



Column: C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
 Mobile phase:

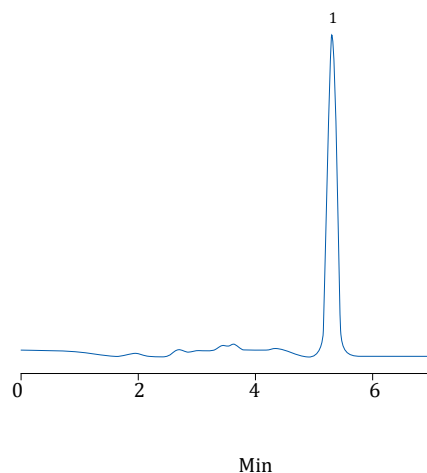
t(min)	% water	% methanol	Flow rate (mL / min)
0	85	15	0.5
2	75	25	0.5
8	75	25	0.5
9	60	40	0.8
10	55	45	0.8
19	20	80	0.8
25	20	80	0.8
26	85	15	0.5

 Detection: Fluorescence detector, ex 330nm, em 465nm
 Column: 50mM NaOH solution and OPA reagent, flow rate 0.3mL/min;
 Column temperature: 42 °C

Glyphosate

No.1209059

1. Glyphosate

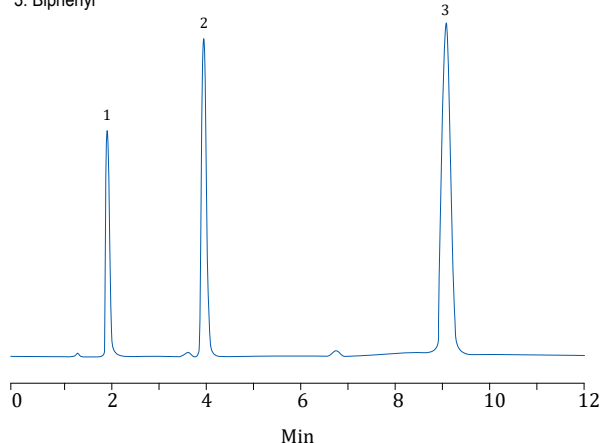


Column: SAX 4.6 × 150mm, 5μm (HCA050U046X15021A)
 Mobile phase: methanol / 10mM KH₂PO₄ (pH 2.0) (15/85)
 Flow rate: 1.0mL/min
 Detection: 195 nm
 Column temperature: 25 °C

Fungicides

No.1209058

1. Ithabendazole
2. o-Phenylphenol
3. Biphenyl

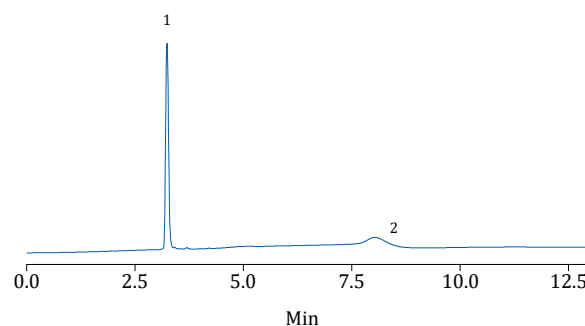


Column: C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
 Mobile phase: acetonitrile / 30mM NH₄H₂PO₄ buffer (65/35)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 40 °C

Clethodim

No.1209060

1. Clethodim
2. Impurity



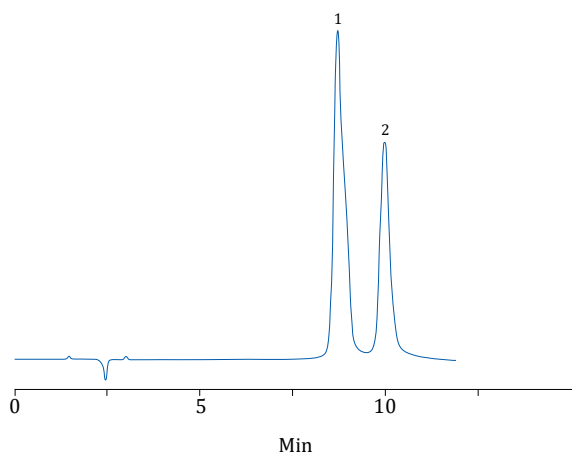
Column: Silica 4.6 × 250mm 5μm (HCA050U046X25076A)
 Mobile phase: dichloromethane: cyclohexane (70:30, containing 0.5%acetic acid)
 Flow rate: 1.0mL/min
 Detection: 280nm
 Column temperature: 25 °C

Application: Veterinary drug residues

Quinolones

No.1209061

1. Norfloxacin
2. Ciprofloxacin

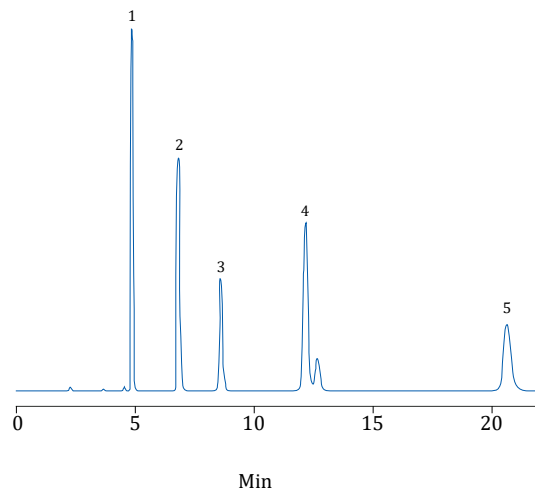


Column: C18-WP 4.6 × 150mm, 5µm (HCA050U046X15072A)
 Mobile phase: 25mM phosphate buffer / acetonitrile (85/15)
 Flow rate: 1.0mL/min
 Detection: 254 nm
 Column temperature: 25 °C

Sulfa drugs in feed

No.1209063

1. Sulfadiazine
2. Sulfamethazine
3. Sulfamonomethoxine
4. Sulfamethoxazole
5. Sulfachinoxalin

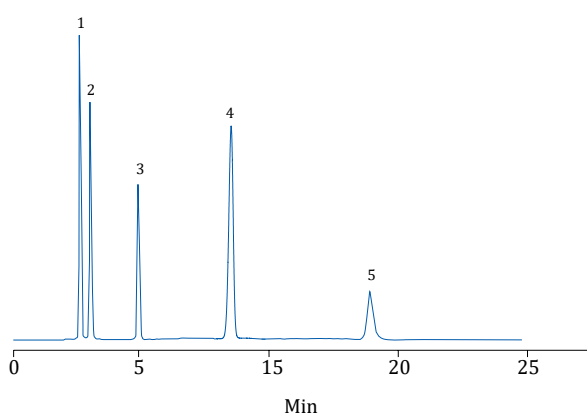


Column: C18-WP 4.6 × 150mm, 5µm (HCA050U046X15072A)
 Mobile phase: acetonitrile / water / acetic acid (25/75/0.3)
 Flow rate: 1.0mL/min
 Detection: 270 nm
 Column temperature: 25 °C

Sulfa

No.1209062

1. Sulfanilamide
2. Sulfisomidine
3. Sulfadiazine
4. Sulfamethazine
5. Sulfamonomethoxine

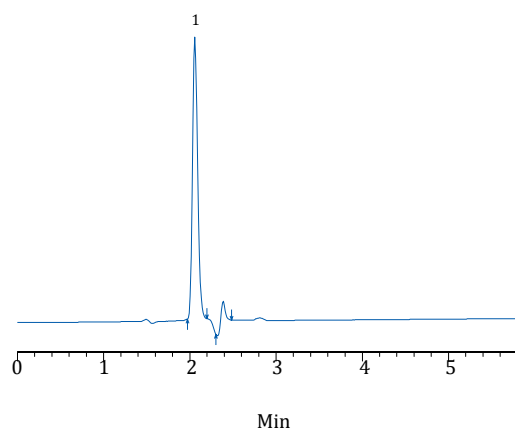


Column: C18-WP 4.6 × 150mm, 5µm (HCA050U046X15072A)
 Mobile phase: acetonitrile / 10mM H3PO4 buffer (15/85)
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: 40°C

Clenbuterol

No.1209064

1. Clenbuterol



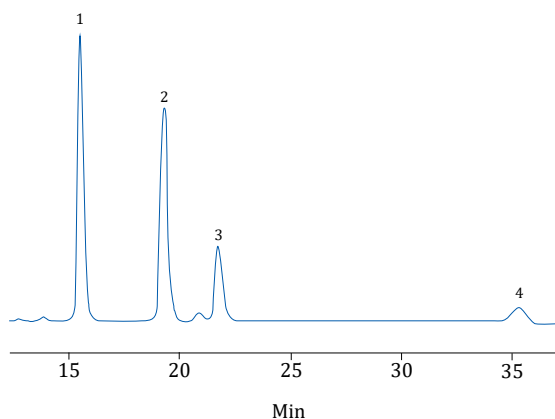
Column: C18-WP 250mm × 4.6, 5 µm (HCA050U046X25072A)
 Mobile phase: water / acetonitrile (20/80)
 Flow rate: 1.0mL/min
 Detection: 240nm
 Column temperature: 25 °C

Fluoroquinolones

No.1209065

1. Ciprofloxacin
2. Danofloxacin

3. enrofloxacin
4. Sarafloxacin

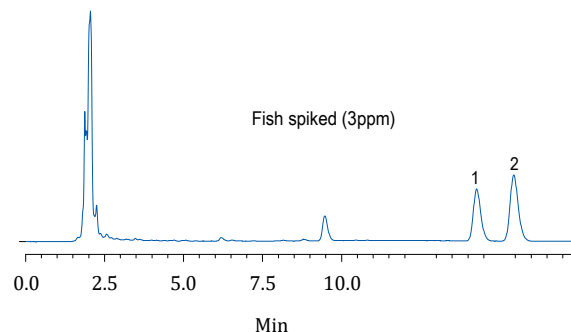


Column: C18-WP, 5um, 4.6 * 250mm (HCA050U046X25072A)
 Mobile phase: acetonitrile +0.05 mol / L phosphoric acid / triethylamine (18 +82)
 Flow rate: 0.8mL/min
 Detection: 280nm
 Column temperature: 35°C

Malachite green and crystal violet aquatic

No.1209067

1. malachite green
2. crystal violet



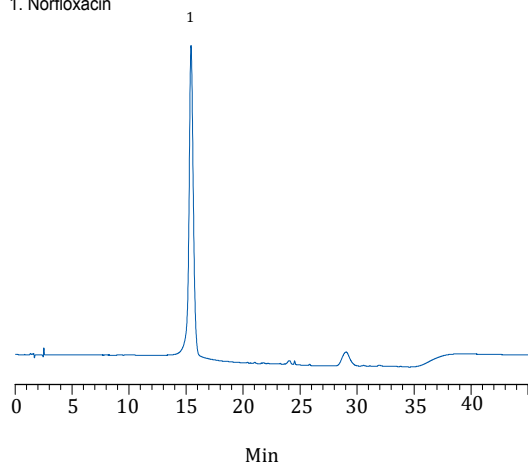
Column: C18-WP, 5um, 4.6*250mm (HCA050U046X25072A)
 Mobile phase: acetonitrile +0.125 mol / L ammonium acetate pH = 4.5 (80 +20)
 Flow rate: 1.3mL/min
 Detection: 265nm
 Column temperature: 35°C

Application: Environment

Norfloxacin

No.1209066

1. Norfloxacin

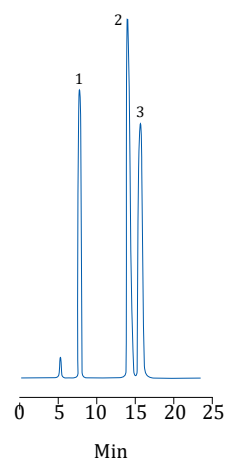


Column: C18-WP 150mm * 4.6,5 um (HCA050U046X15072A)
 Mobile phase: 0.025mol / L phosphoric acid solution (triethylamine adjusted to pH 3.0) / acetonitrile (87/13)
 Flow rate: 1.0 mL/min
 Detection: 278 nm
 Column temperature: 40°C

Nitroaniline

No.1209068

1. o-nitroaniline
2. m-nitroaniline
3. p-nitroaniline

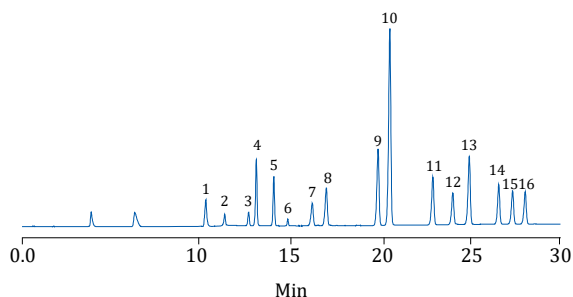


Column: Silica 4.6 × 150mm, 5µm (HCA050U046X15076A)
 Mobile phase: hexane / chloroform (40/60)
 Flow rate: 0.7 mL/min
 Detection: 254nm
 Column temperature: 25°C

Polycyclic aromatic hydrocarbons (PAHs)

No.1209069

- | | |
|-----------------------|----------------------------|
| 1. Naphthalene | 10. Chrysene |
| 2. Acenaphthylene | 11. Benzo(b)fluoranthene |
| 3. Acenaphthene | 12. Benzo(k)fluoranthene |
| 4. Fluorene | 13. Benzo(a)pyrene |
| 5. Phenanthrene | 14. Dibenzo(a,h)anthracene |
| 6. Anthracene | 15. Benzo(g,h,i)perylene |
| 7. Fluoranthene | 16. Indeno(1,2,3-cd)pyrene |
| 8. Pyrene | |
| 9. Benzo(a)anthracene | |

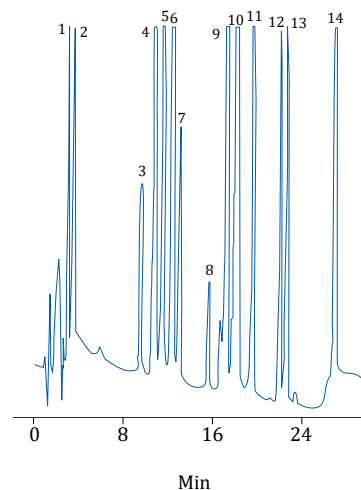


Column: PAHs 4.6 × 250mm, 5μm(HCA050U046X25051A)
 Column Temperature: 30 °C
 Mobile phase: gradient A: water B:acetonitrile
 0min:40%B;25min 100%B;35min 100%B;45min 40%B
 Flow rate: 2.0ml/min
 Detection: 266nm
 Inj volume: 5ul(10ppm)

Watery nonvolatile pesticides

No.1209071

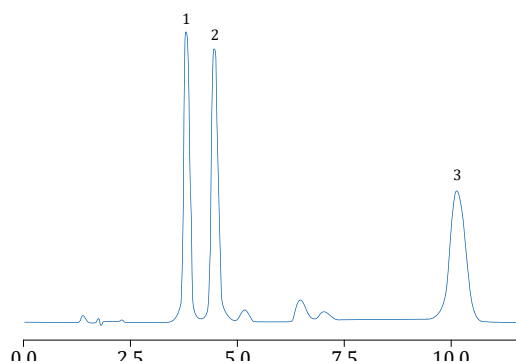
- | | |
|---------------|-----------------|
| 1. Oxamyl | 9. Atrazine |
| 2. Methomyl | 10. Carbaryl |
| 3. Aldicarb | 10. Fluometuron |
| 4. Simazine | 11. Diuron |
| 5. Monuron | 12. Propachlor |
| 6. Cyanazine | 13. Propachlor |
| 7. Metribuzin | 14. Linuron |
| 8. Carbofuran | |



Column: C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
 Mobile phase: A: water / acetonitrile (90/10); B: acetonitrile 0min B: 20%; 5min B: 20%; 30min B: 70%
 Flow rate: 1.5 mL / min
 Detection: 220nm
 Column temperature: 25°C

Tetracyclines

1. Oxytetracycline
2. Tetracycline
3. Chlortetracycline

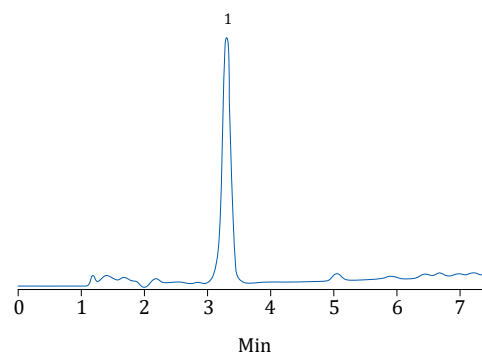


Column: C18-WP (4.6 × 250mm, 5μm (HCA050U046X25072A)
 Mobile phase: acetonitrile / methanol / 10mM oxalic acid solution (15/15/70)
 Flow rate: 1.0 mL/min
 Detection: 355nm
 Column temperature: 25°C

Bisphenol A

No.1209072

1. Bisphenol A



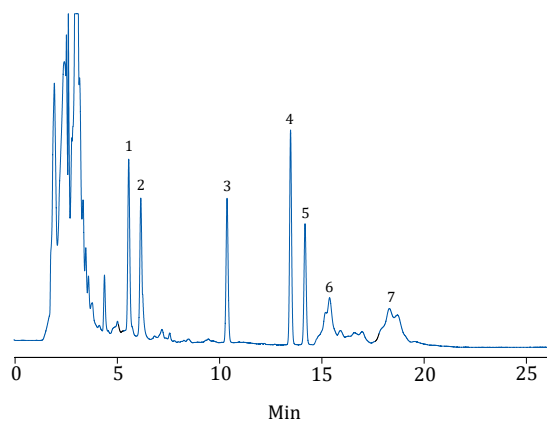
Column: C18-WP 4.6 × 150mm, 5μm (HCA050U046X15072A)
 Mobile phase: A: Acetonitrile; B: Water
 0min B: 40%; 7min B: 5%
 Flow rate: 1.0mL/min
 Detection: 216nm
 Column temperature: 35°C

Application: Industrial parts

Leather's phthalates

No.1209073

1. BBP
2. DBP
3. DNHP
4. DEHP
5. DNOP
6. DINP
7. DIDP



Column: C18-WP 4.6 × 250mm, 5μm (HCA050U046X25072A)
 Mobile phase:

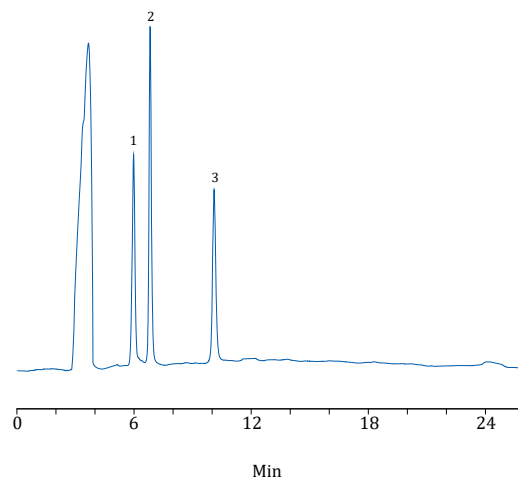
t(min)	acetonitrile	water	flow rate(mL/min)
0	90	10	1
6.5	100	0	1.5
7.5	100	0	1.5

 Flow rate: 1.0mL/min
 Detection: 228 nm
 Column temperature: 25 °C

Phthalate monoester

No.1209075

1. MMP
2. MEP
3. MBP

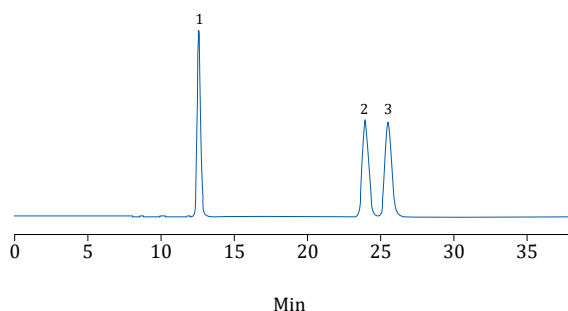


Column: Phenyl 4.6 × 150mm, 5μm (HCA050U046X15037A)
 Mobile phase: acetonitrile / water / acetic acid (45/55/0.2)
 Flow rate: 0.8 mL/min
 Detection: 228 nm
 Column temperature: 25 °C

Parabens in cosmetics

No.1209074

1. Iso-propyl paraben
2. Iso-butyl paraben
3. Iso-butylparaben

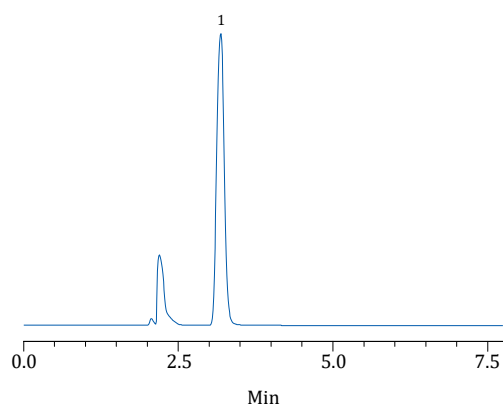


Column: C18 (HCA050U046X25071A)
 Mobile phase: methanol / 20mM aqueous ammonium acetate = 58/42
 Flow rate: 1.0 mL/min
 Detection: 254 nm
 Column temperature: room temperature

Bromopyrene-C8

No.1209076

1. Bromopyrene



Column: C8 4.6 × 150mm, 5μm (HCA050U046X15075A)
 Mobile phase: 100% methanol
 Flow rate: 1.0mL/min
 Detection: 254nm
 Column temperature: 25 °C

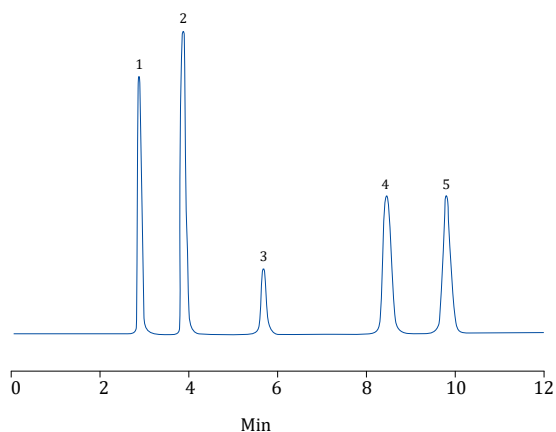
Application: Biochemistry

Nucleoside -1

No.1209077

1. Cytosine
2. Uracil
3. Cytidine

4. Uridine
5. Thymine



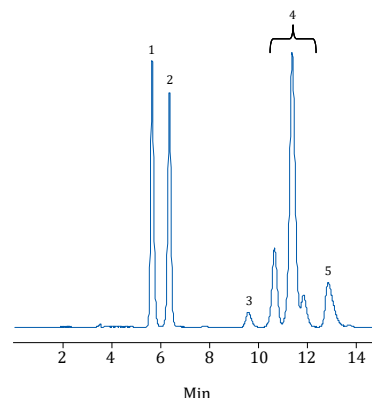
Column: C18-WP 4.6 × 250mm, 5µm
(HCA050U046X25072A)
Mobile phase: 100% water
Flow rate: 1.0 mL / min
Detection: 254 nm
Column temperature: 40 °C

Nucleoside

No.1209079

1. Uridine
2. Cytidine
3. Guanosin

4. Inosine and impurities
5. Adenosine



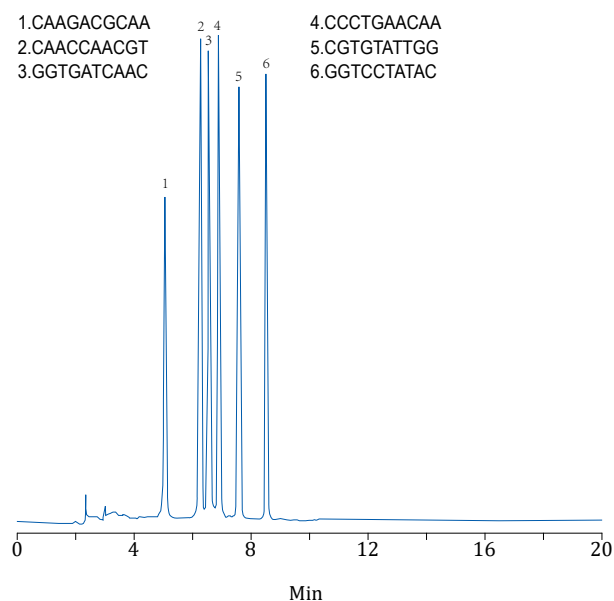
Column: SCX 4.6 × 150mm, 5µm (HCA050U046X15023A)
Mobile phase: 50mM sodium phosphate buffer (pH 2.5)
Flow rate: 0.5 mL/min
Detection: 280 nm
Column temperature: 25 °C

Oligonucleotide

No.1209078

1. CAAGACGCAA
2. CAACCAACGT
3. GGTGATCAAC

4. CCCTGAACAA
5. CGTGTATTGG
6. GGTCTTATAC



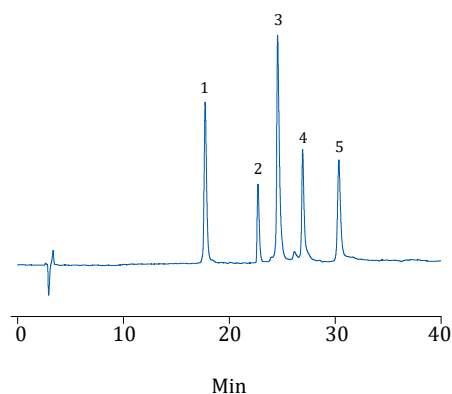
Column: C18-BIO 4.6 × 150mm, 5µm
(HCA050U046X15078A)
Mobile phase: A: 50mM NaH₂PO₄ buffer solution (pH 7.0); B: Acetonitrile 0min B: 5%; 20min B: 15%
Flow rate: 1.0 mL/min
Detection: 260nm
Column temperature: 25 °C

Protein separation

No.1209081

1. Ribonuclease B
2. Insulin
3. Cytochrome C

4. Lysozyme
5. BSA

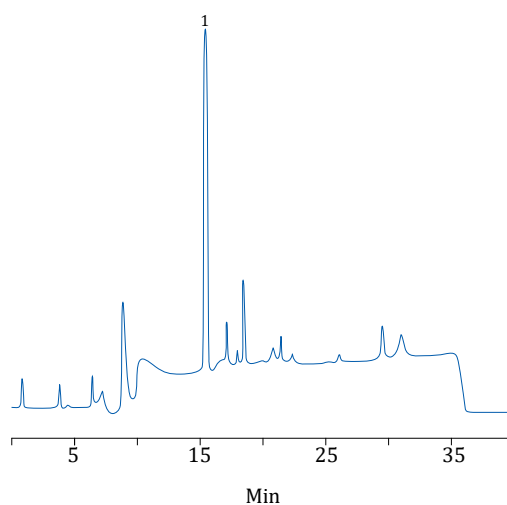


Column: Sep RP3 4.6 × 150mm, 5µm (HCA050U046X150A3A)
Mobile phase: A: 0.1% TFA aqueous solution
B: 0.1% TFA in acetonitrile
0min 5min 45min 20%B
20%B 60%B
Flow rate: 1.0 mL / min
Detection: 214nm
Column temperature: 40 °C

Synthetic peptide

No.1209083

1.Cys-Cys(Acm)-Phe-Arg-Ser-Cys-Asy

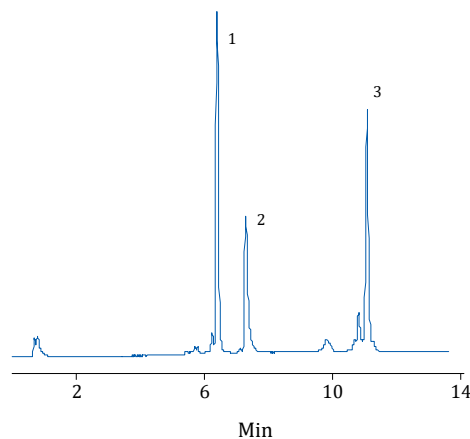


Column: C18 4.6 × 150mm, 5μm (HCA050U046X15071A)
 Mobile phase: A: 10mM TFA; B: 10mM +60% acetonitrile
 0min to 30min proportion of mobile phase B
 gradient from 0% to 100%
 Flow rate: 1.0 mL / min
 Detection: 214nm
 Column temperature: 25°C

Protein sample

No.1209084

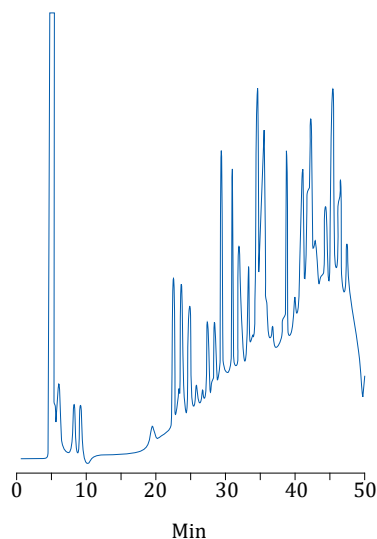
1. Cytochrome
2. Ribonuclease A
3. Lysozyme



Column: Sep SAX 4.6 × 50mm, 3μm (HCA030U046X050G1A)
 Mobile phase: A: 10 mM phosphate buffer (pH 6.0); B: A + 1.0 M NaCl 0-15min, B: 0% -70%
 Flow rate: 0.5mL/min
 Detection: 280nm
 Column temperature: 25°C

Hydrolysis of bovine serum albumin

No.1209082



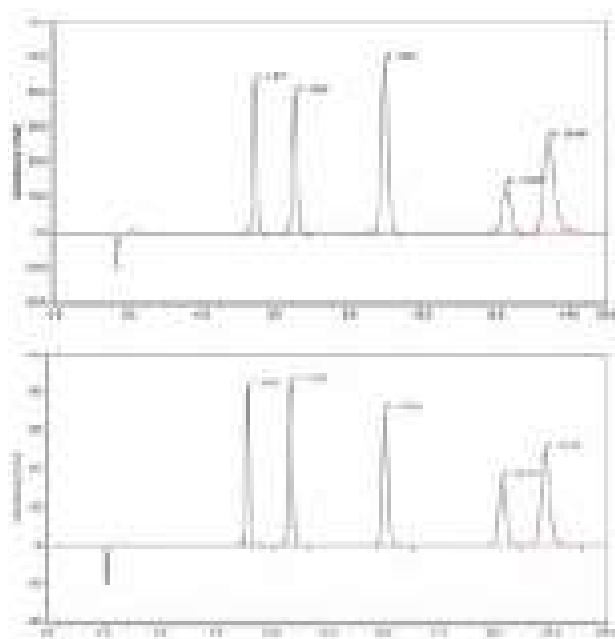
Column: C4 4.6 × 250mm, 5μm (HCA050U046X25079A)
 Mobile phase: A: 0.09%TFA; B: 0.085% TFA +80% acetonitrile
 0min B 5%; 5min B 5%; 35min B 50%; 45min B 100%
 Flow rate: 1.0 mL/min
 Detection: 214nm
 Column temperature: 25°C

Specialized Chromatography Columns

Preservative Analysis Chromatography Column

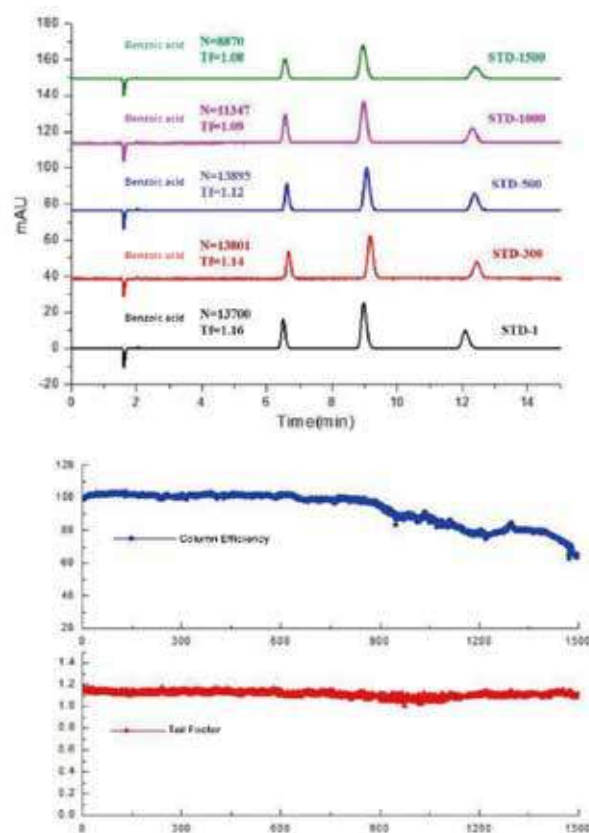
[GB 5009.28-2016 National Food Safety Standard
Determination of Benzoic Acid, Sorbic Acid, and Sodium
Saccharin in Foods]
[GB 5009.121-2016 National Food Safety Standard
Determination of Dehydroacetic Acid in Foods]

BST-C18 is a newly developed chromatography column by , specifically designed for the detection of preservatives. It employs a polar small molecule end-capping technique to reduce the bonding density of C18, which enhances the hydrophilicity of the filler material and aims to slow down the rate of contamination in the chromatography column. This design extends the column's service life and improves its durability for preservative detection applications. Even after consecutive injections of over a thousand samples, the column still maintains outstanding peak shape and resolution.

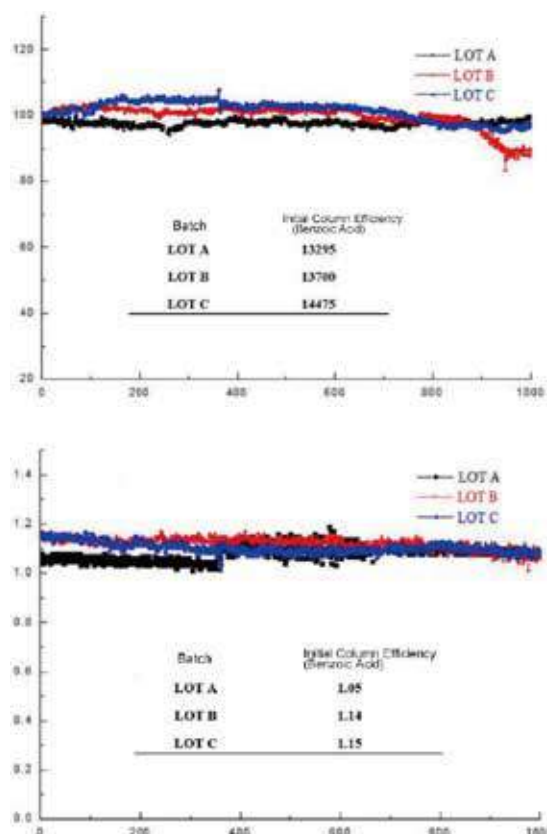


Column: BST-C18 , 4.6 mm x 150 mm, 5 μ m BST-C18, 4.6 mm x 250 mm, 5 μ m
Mobile phase: Methanol: 20 mM Ammonium Acetate (5:95)
Flow rate: 1.0 mL / min
Detection: 230 nm
Column temperature: 35°C

1.BST-C18 Batch Stability Test Initial Column



2. BST-C18 Batch Stability Test Initial Column

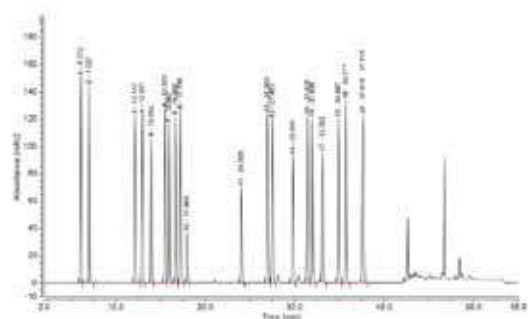


Ordering information

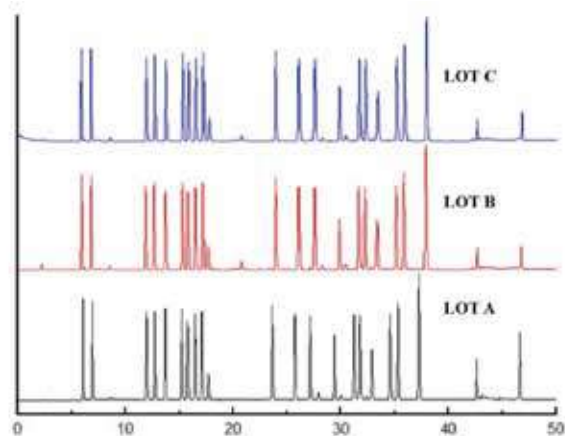
Packings	Product Code	Particle size	diameter ×length
BST-C18(II) HPLC	HCA050U046X15092A	5μm	4.6×150mm
BST-C18(II) HPLC	HCA050U046X25092A	5μm	4.6×250mm
BST-C18(II) Guard Cartridges	HCA050U040X02092A	5μm	4.0 × 20 mm
BST-C18(II) Guard Cartridge Kit, 1 Holder and 1 Cartridge	HCA050U040X02092KA	5μm	4.0 × 20 mm

AAA HPLC Column

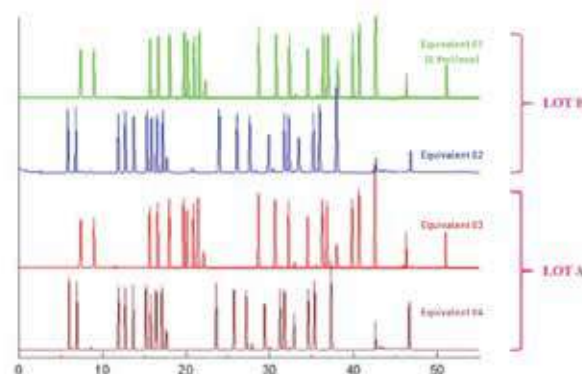
The Amino Acid Analysis Column is a chromatography column developed by , specifically designed for the detection of amino acids. Its accompanying method package utilizes the pre-column derivation method with phenylisothiocyanate (PITC), offering the following advantages: (1) PITC has good stability, can be stored for half a year at 2-8°C, and avoids the hassle of frequent replacement or preparation due to the expiration of the derivative reagent; (2) the mobile phase pH is 6.5 (±0.05), which is conducive to extending the life of the chromatography column and reducing costs. The AAA Method Package can be widely applied to the detection of amino acids in biological fermentation broth, feed, amino acid injections, food, and beverages.



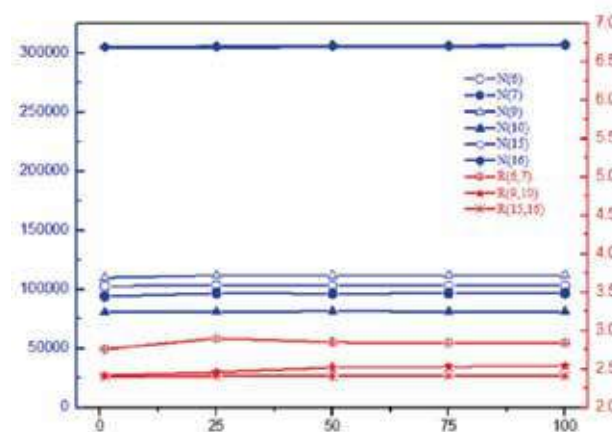
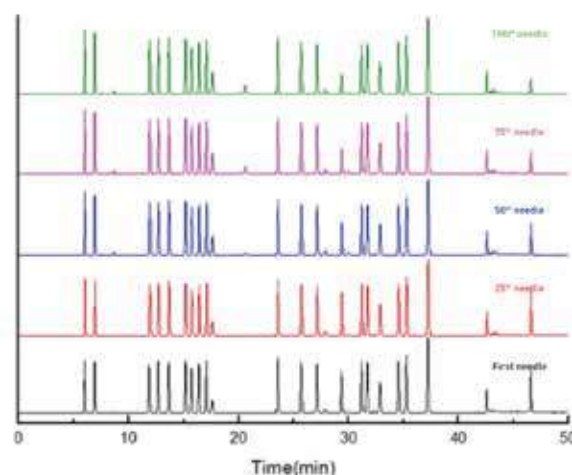
1.Amino Acid Analysis Column Batch Reproducibility Test



2.Amino Acid Analysis Column Instrument Universality Test



3.Amino Acid Analysis Column Injection Stability Test



Ordering information

Packings	Product Code	Particle size	diameter ×length
PAHs HPLC	HCA050U046X25087A	5μm	4.6×250mm

New Mobile Phase Filter

New Mobile Phase Filter

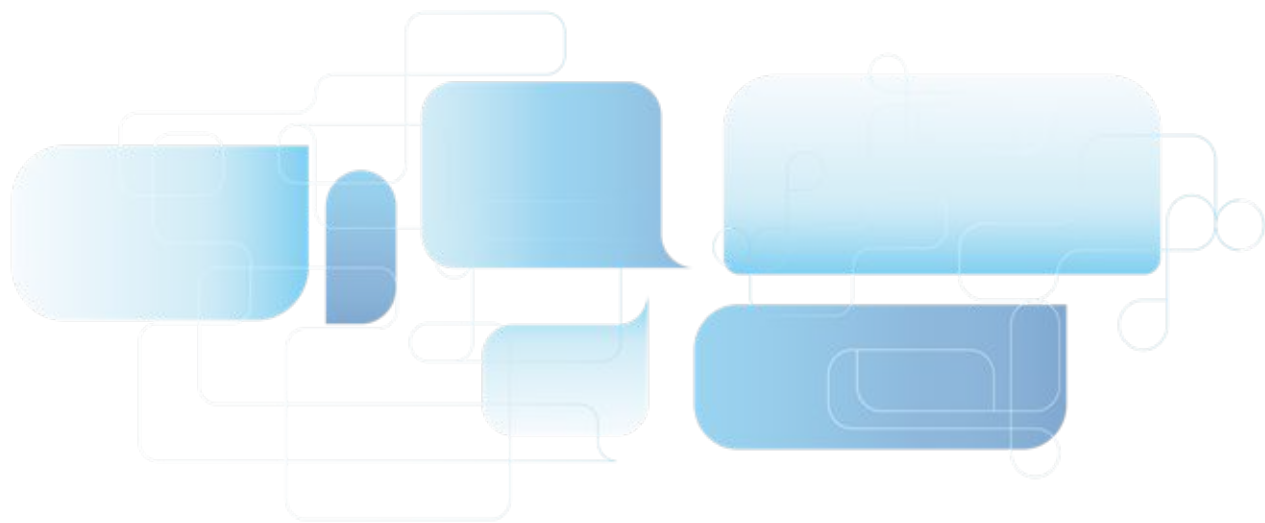


New Mobile Phase Filter is designed to solvent rapidfiltration and degassing, suitable for filtering andandegassing of the HPLC mobile phase solvent, Can prolong the service life of instrument and the chromatographic column, improve the detection accuracy; Used in gravimetric analysis, trace analysis, trace analysis, colloid separation and sterile in the laboratory.

Compare to traditional Solvent Filter, the new design solve following questions:

- 1.Larger filter cup capacity, avoid multiple adding;
- 2.Removes clamp, avoid potential leaking;
- 3.Substitute Frosted Seal to Thread fastening, avoid fusion after long time usage.
- 4.Substitute Quartz sand core to PTFE filter plate, avoid hard cleaning.
- 5.Substitute Conical flask to GL45 ISO Bottles, avoid solvent transfer after filter.

Description	Packaging	Product Code
PTFE Solvent filter assembly,with 1000mL glass reservoir	1 per carton	VHOLDERAPTFE1000A



Multi-Functional Purification Plates

24-Well Multi-Functional Purification Plates



Features

- A High throughput: process 24 samples in one time, suitable for automated sample preparation workstations.
- A High recovery rate: good purification effect, no background interference, high recoveries
- A Good stability: reduce experimental errors, highly reproducible experimental data.
- A Simple and fast: the purification can be finished within 30 seconds.
- A Achieve selective adsorption of impurities such as pigments, lipids, and proteins in sample.

Procedures

24-Well HLB Lim Plates



1. Pipette the sample supernatant to a 24-Well Multi-Functional Purification Plates.



2. Filter with Positive Pressure 24 Processor.



3. Concentrate by 24-Well Plate Intelligent Nitrogen Evaporator



4. Filter by Syringe Filter and Sample Vials.



5. Liquid chromatography mass spectrometry analysis.

24-Well Multi-Functional Purification Plates

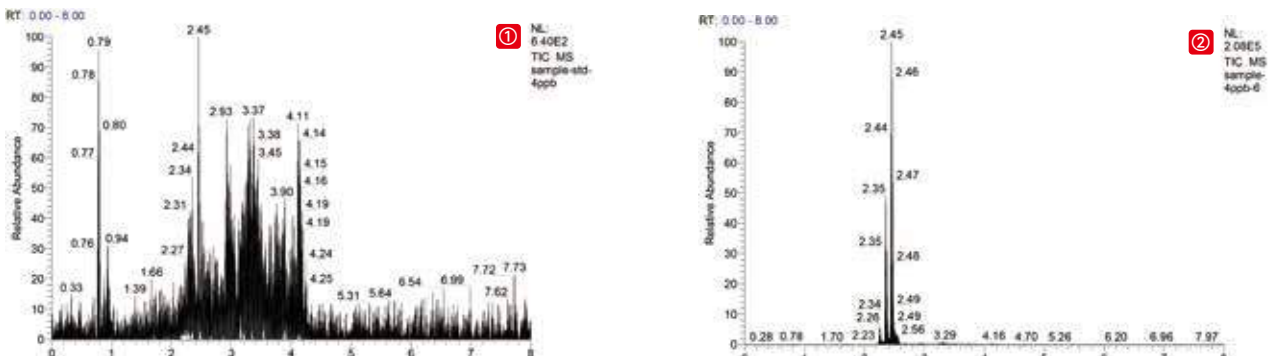


Figure 1 TIC Chromatograms of Corn Flour Sample
[① Before Purification ② After Purification by 226 Multifunctional Clean-Up Plate]

Test	Spike (ng/g)	226 Multifunctional Clean-Up Plate	
		Recovery (%, n=24)	CV (%)
AFT B1	0.5	105	3.92
	1	101	2.41
AFT B2	0.5	102	4.12
	1	95.8	4.15
AFT G1	0.5	105	2.69
	1	104	4.13
AFT G2	0.5	101	4.28
	1	95.4	3.75

Based on Figure 1, the impurities are obviously adsorbed, therefore miscellaneous peaks are fewer in the TIC chromatogram. As result, the purified sample is cleaner, and the purification effect is better.

Based on Table 1, the recovery rates of aflatoxin in the 24 wells are between 90-110%, and the CV value of the recovery rate between wells is less than 5%, which meet the standard of experimental requirements.

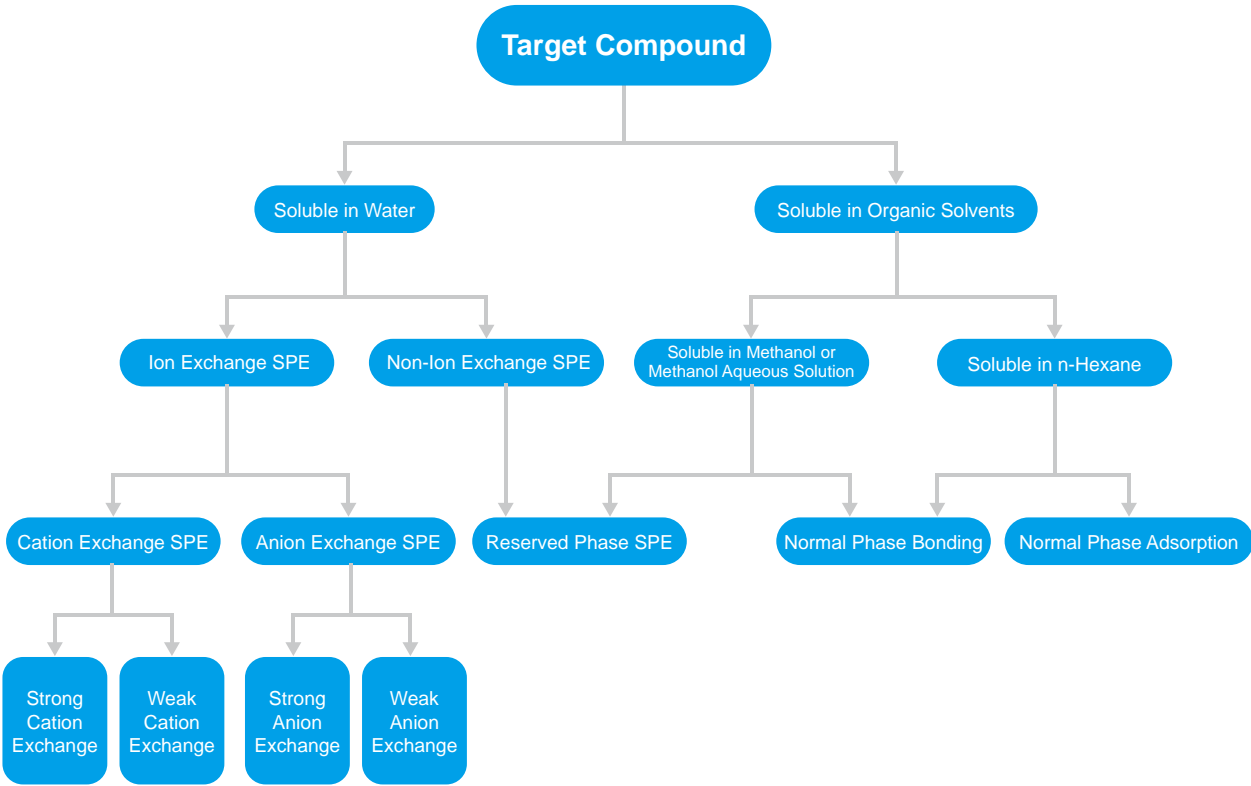
Conclusion

According to the results, the 24-Well Multi-Functional Purification Plates are more stable. The miscellaneous peaks are less on the chromatogram, and no interfering peaks next to the target peaks result in more accurate quantification.

Ordering information

Product Code	Description	Application	Qty.
CUCMFP1819A	228 Multifunctional Clean-Up Plate	Patulin, Aflatoxin B1, B2, G1, G2	1 Pc/Box
CUCMFP1820A	226 Multifunctional Clean-Up Plate	Zearalenone, Alatoxin B1, B2, G1, G2	1 Pc/Box
CUCMFP1821A	224 Multifunctional Clean-Up Plate	Zearalenone	1 Pc/Box
CUCMFP1823A	223 Multifunctional Clean-Up Plate	Aflatoxin M1, M2	1 Pc/Box
CUCMFP1824A	230 Multifunctional Clean-Up Plate	Deoxynivalenol	1 Pc/Box
CUCMFP1818A	229 Multifunctional Clean-Up Plate	Ochratoxin	1 Pc/Box
CUCMFP1822A	302 Multifunctional Clean-Up Plate	Multiple functions	1 Pc/Box
CHREQU2402EA	Positive Pressure 24 Processor		1 Set/Ctn
CHREQU24YYEA	24-Well Plate Intelligent Nitrogen Evaporator		1 Set/Ctn

SPE Cartridge Sorbent Selection Guide



Mechanism of Action

Type	Reversed Phase	Normal Phase	Ion Exchange	Other
Mechanism	The reversed phase column sorbent is less polar substance, which extract medium or less polar substances from the extract through hydrophobic interaction.	The normal phase column sorbent is a strong polar substance, which extract strong polar substance from the extract through hydrophilic interaction.	The ion exchange column sorbent is charged, which extract corresponding charged ions by interaction force.	Solid Supported Liquid-Liquid Extraction (SLE), Graphite-Carbon Black (GCB), etc.
Typical Application	Degreasing by reversed phase column in the detection of veterinary drug residues in foods of animal origin.	Remove organic acids from plant-based foods by normal phase column in pesticide residues test.	The MCX column adsorbs the target alkaline compounds such as melamine, ractopamine, etc., then rinse to remove impurities.	Extract aromatic amines in aqueous solution by SLE in azo dyes detection.

Solid Phase Extraction Cartridge Operation Procedures

Distinguish whether the SPE cartridge is used to adsorb the target compound or impurities before experiment. If the SPE cartridge adsorbs the target compound, process will be in 4 steps: activating, loading, washing and elution. If the SPE cartridge adsorbs the impurities, process will be in 3 steps: activating, loading and elution. 1-2 mL/min flow rate and Vacuum Manifolds with pressure control function are recommended.

General Procedures



① Activating



② Loading



③ Washing



④ Elution



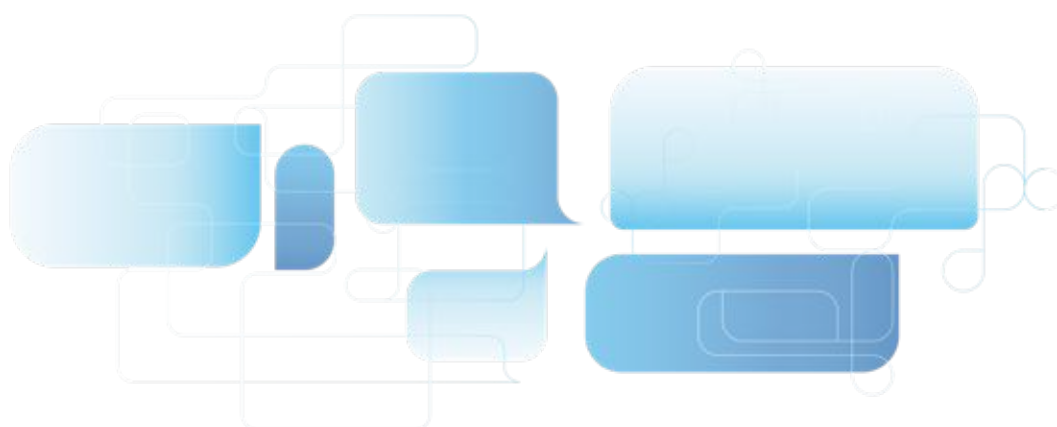
⑦ Analysis



⑥ Filtration



⑤ Concentration



SPE Cartridge Directions



Gravity Method



Ion Exchange, Syringe Method



Positive Pressure Method



SPE Vacuum Manifold

Solvent Selection

SPE Cartridges	Category	Low Elution Strength Solvent (Weak Solvent)
Reversed Phase Cartridges	HLB, C18, C8	Water, Acetonitrile, Methanol
Normal Phase Cartridges	Florisil, ALN, Silica	n-Hexane, Cyclohexane
Cation Exchange Cartridges	MCX, SCX, WCX, PRS	Acidic or Neutral Solution
Anion Exchange Cartridges	MAX, SAX, WA X	Alkaline or Neutral Solution

The elution strength gradually increases during the experiments. In general, weak solvent is used during activating and loading . Weak solvent (might mixed with small amount of strong solvent) used during washing. Strong solvent (might mixed with small amount of weak solvent) during elution.

Analysis and Solutions of Low Recovery Rate

① Analyze the Solution Collected Each Step

When the absolute recovery of the target substance is low, detect the solution collected after each step, then optimize the filtration method.

Detected Target	Reason	Solution
Low recovery of blank spike	Improper SPE cartridge or improper operation	Replace the SPE cartridge or exclude improper solvent
Good recovery of blank spike, but low recovery of pre spike	Matrix effect interference	Optimize pretreatment method or use matrix standard for quantification
Good recovery of pre spike, but low recovery of matrix spike	Low extraction efficiency	Change the extraction solvent or the extraction method

② Add Spike in Different Steps

Detected Target	Reason	Solution
Low recovery of blank spike	Improper SPE cartridge or improper operation	Replace the SPE cartridge or exclude improper solvent
Good recovery of blank spike, but low recovery of pre spike	Matrix effect interference	Optimize pretreatment method or use matrix standard for quantification
Good recovery of pre spike, but low recovery of matrix spike	Low extraction efficiency	Change the extraction solvent or the extraction method

Notes: ① Blank spike: add a spike to pure solvent. ② Pre spike: add a spike to blank matrix extract. ③ Matrix spiked: add a spike to blank matrix.

Solid Phase Extraction (SPE) Cartridge Product List

SorbentPhase	GVS	Waters	Agilent	Phenomenex	Supelco	Agela
C18	C18	Sep-pak tC18	Bond Elut C18	Strata C18-E	Sepelclean ENVI-18	Cleanert C18
C18-Ne	C18-n	Sep-pak C18	Bond Elut C18OH	Strata C18-U		Cleanert C18-N
C8	C8	Sep-pak C8	Bond Elut C8	Strata C8	Sepelclean ENVI-8	Cleanert C8
CN	CN	Sep-pak CN	Bond Elut CN-E	Strata CN	Sepelclean LC-CN	Cleanert CN
NH2	NH2	Sep-pak NH2	Bond Elut NH2	Strata NH2	Sepelclean LC-NH2	Cleanert NH2
PSA	PSA		Bond Elut PSA	Strata PSA	Sepelclean PSA	Cleanert PSA
SAX	SAX		Bond Elut SAX	Strata SAX	Sepelclean LC-SAX	Cleanert SAX
SCX	SCX		Bond Elut SCX	Strata SCX	Sepelclean LC-SI	Cleanert SCX
Silica	Silica	Sep-pak SI	Bond Elut SI	Strata SI-I	Sepelclean LC-SCX	Cleanert Silica
HLB	HLB	Oasis HLB	Bond Elut Plexa	Strata-X	Supel-Select HLB	Cleanert PEP
HLB	HLB-lim	Oasis PRIME HLB				
MCX	MCX	Oasis MCX	Bond Elut Plexa PCX	Strata-XC	Supel-Select SCX	Cleanert PCX
MAX	MAX	Oasis MAX	Bond Elut Plexa PAX	Strata-XA	Supel-Select SAX	Cleanert PAX
Florisil	Florisil	Sep-pak FI	Bond Elut FL	Strata FR-PR	Sepelclean LC-Florisil	Cleanert Florisil
Graphitized Bond	Carb-GCB		Bond Elut Carbon		Sepelclean ENVI Carb	Cleanert PestiCarb
Alumina-N	ALN	Sep-pak Alumina-N	Bond Elut Alumina-N	Strata Alumina-N	Sepelclean LC-Alumina-N	Cleanert AluminaN
Alumina-A	ALA	Sep-pak Alumina-A	Bond Elut Alumina-A	Strata Alumina-A	Sepelclean LC-Alumina-A	Cleanert AluminaA
Alumina-B	ALB	Sep-pak Alumina-B	Bond Elut Alumina-B	Strata Alumina-B	Sepelclean LC-Alumina-B	Cleanert AluminaB
GCB/NH2	Carb-GCB/NH2		Bond Elut Carb/NH2		Sepelclean ENVI Carb/NH2	Cleanert PestiCarb/NH2
GCB/PSA	Carb-GCB/PSA		Bond Elut Carb/PSA		Sepelclean ENVI Carb-IL/PSA	



Polymer Sorbent

GVS provides various specifications and sorbents of polymeric SPE Cartridges. Each batch has passed performance verification to meet the pretreatment needs of various sample matrices. We provide excellent products of high recoveries and good stability to customers.

HLB Hydrophilic-Lipophilic Balanced

Extracting non-polar to moderately polar acidic, neutral and alkaline compounds

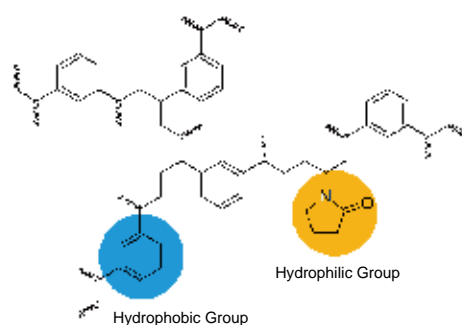
Specifications

Surface area: 600 m²/g Particle size: 40 µm Pore size: 300 Å

Ordering information

Product Code	Description	Qty.
SPEB00HLB01030A	30mg/1mL	100 Pcs/Box
SPEB00HLB03060A	60mg/3mL	50 Pcs/Box
SPEB00HLB03200A	200mg/3mL	50 Pcs/Box
SPEB00HLB06150A	150mg/6mL	30 Pcs/Box
SPEB00HLB06200A	200mg/6mL	30 Pcs/Box
SPEB00HLB06500A	500mg/6mL	30 Pcs/Box
SPEB00HLB12500A	500mg/12mL	20 Pcs/Box
SPEB00HLB01060A	60mg/1ml	100 Pcs/Box
SPEB00HLB01100A	100mg/1ml	100 Pcs/Box
SPEB00HLB03030A	30mg/3ml	50 Pcs/Box
SPEB00HLB061000A	1g/6ml	30 Pcs/Box

Note: equivalent to Waters Oasis HLB



MAX Mixed-mode Anion Exchange

Extracting acidic compounds

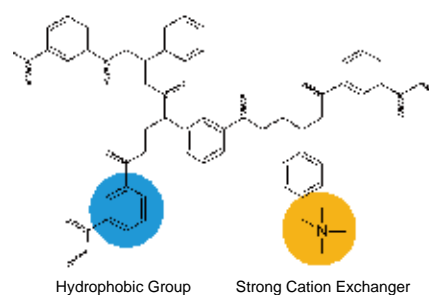
Specifications

Surface area: 600 m²/g

Ordering information

Product Code	Description	Qty.
SPEB00MAX01030A	30mg/1mL	100 Pcs/Box
SPEB00MAX01060A	60mg/1ml	100 Pcs/Box
SPEB00MAX03030A	30mg/3ml	50 Pcs/Box
SPEB00MAX03060A	60mg/3mL	50 Pcs/Box
SPEB00MAX03200A	200mg/3mL	50 Pcs/Box
SPEB00MAX03500A	500mg/3ml	50 Pcs/Box
SPEB00MAX06150A	150mg/6mL	30 Pcs/Box
SPEB00MAX06200A	200mg/6mL	30 Pcs/Box
SPEB00MAX06500A	500mg/6mL	30 Pcs/Box
SPEB00MAX12500A	500mg/12mL	20 Pcs/Box
SPEB00MAX121000A	1g/12ml	20 Pcs/Box

Note: equivalent to Waters Oasis MAX



MCX Mixed-mode Cation Exchange

Extracting alkaline compounds

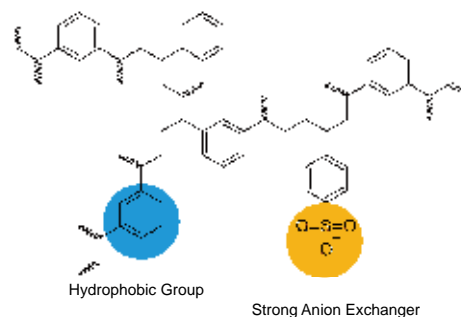
Specifications

Surface area: 600 m²/g Particle size: 40 µm Pore size: 300 Å

Ordering information

Product Code	Description	Qty.
SPEB00MCX01030A	30mg/1mL	100 Pcs/Box
SPEB00MCX01060A	60mg/1ml	100 Pcs/Box
SPEB00MCX03030A	30mg/3ml	50 Pcs/Box
SPEB00MCX03060A	60mg/3mL	50 Pcs/Box
SPEB00MCX03500A	500mg/3ml	50 Pcs/Box
SPEB00MCX06150A	150mg/6mL	30 Pcs/Box
SPEB00MCX06200A	200mg/6mL	30 Pcs/Box
SPEB00MCX06500A	500mg/6mL	30 Pcs/Box
SPEB00MCX12500A	500mg/12mL	20 Pcs/Box
SPEB00MCX121000A	1g/12ml	20 Pcs/Box

Note: equivalent to Waters Oasis MCX



WCX Weak Cation Exchange

Extracting strong bases

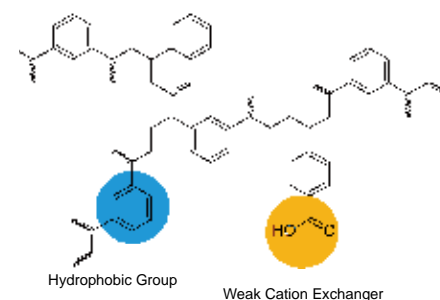
Specifications

Surface area: 600 m²/g Particle size: 40 µm Pore size: 300 Å

Ordering information

Product Code	Description	Qty.
SPEB00WCX01030A	30mg/1mL	100 Pcs/Box
SPEB00WCX01060A	60mg/1ml	100 Pcs/Box
SPEB00WCX03030A	30mg/3ml	50 Pcs/Box
SPEB00WCX03060A	60mg/3mL	50 Pcs/Box
SPEB00WCX03500A	500mg/3mL	50 Pcs/Box
SPEB00WCX06150A	150mg/6mL	30 Pcs/Box
SPEB00WCX06200A	200mg/6mL	30 Pcs/Box
SPEB00WCX06500A	500mg/6mL	30 Pcs/Box
SPEB00WCX12500A	500mg/12ml	20 Pcs/Box
SPEB00WCX121000A	1g/12ml	20 Pcs/Box

Note: equivalent to Waters Oasis WCX



WAX Weak Anion Exchange

Extracting strong acids

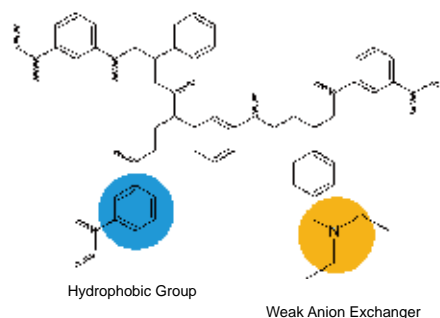
Specifications

Surface area: 600 m²/g Particle size: 40 µm Pore size: 300 Å

Ordering information

Product Code	Description	Qty.
SPEB00WAX01030A	30mg/1mL	100 Pcs/Box
SPEB00WAX01060A	60mg/1ml	100 Pcs/Box
SPEB00WAX03030A	30mg/3ml	50 Pcs/Box
SPEB00WAX03060A	60mg/3mL	50 Pcs/Box
SPEB00WAX03500A	500mg/3mL	50 Pcs/Box
SPEB00WAX06150A	150mg/6mL	30 Pcs/Box
SPEB00WAX06200A	200mg/6mL	30 Pcs/Box
SPEB00WAX06500A	500mg/6mL	30 Pcs/Box
SPEB00WAX12500A	500mg/12ml	20 Pcs/Box
SPEB00WAX121000A	1g/12ml	20 Pcs/Box

Note: equivalent to Waters Oasis WAX



HLB Lim Cartridges for Multi-Residue Analysis of Veterinary Drug



HLB Lim cartridge is a new type of solid phase extraction column packed with special sorbent. Comparing to traditional SPE cartridges, it removes interfering substances such as fat, phospholipid and pigment faster to reduce matrix effect.

The HLB Lim Cartridge greatly simplifies the process of sample preparation. Activation and equilibration steps can be skipped. Filtering the sample directly after extraction saves a lot of time and reagents so that the sample preparation is simpler and more efficient.

Features

- A One step purification and shorter pretreatment time
- A High recovery rate and good reproducibility
- A Suitable for multi-matrix and multi-residue analysis of veterinary drug
- A Save solvent and cost

Typical Recovery

Compound	Recovery (%)
Tetracycline	97.7
Chlortetracycline	87.9
Oxytetracycline	87.7
Ractopamine	95.8
Salbutamol	108
Clenbuterol	91.6

Ordering information

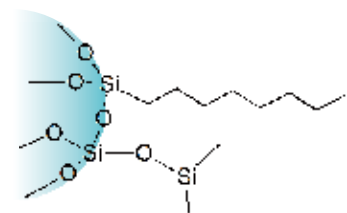
Product Code	Description	Qty.
SPEB00HLB03200A	HLB Lim Cartridges, 3 mL	50 Pcs/Box

SPE Cartridges



C8 Octyl

Extracting non-polar compounds



Specifications

Carbon content: 9% Surface area: 280 m²/g

Particle size: 40 - 75 μm Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB000C801100A	100mg/1mL	100 Pcs/Box
SPEB000C803200A	200mg/3mL	50 Pcs/Box
SPEB000C803500A	500mg/3mL	50 Pcs/Box
SPEB000C806500A	500mg/6mL	30 Pcs/Box
SPEB000C8061000A	1000mg/6mL	30 Pcs/Box
SPEB000C8122000A	2000mg/12mL	20 Pcs/Box

C18 A Unendcapped Octadecyl

Extracting non-polar compounds



Specifications

Carbon content: 12% Surface area: 300 m²/g

Particle size: 40 - 75 μm Pore size: 70 Å

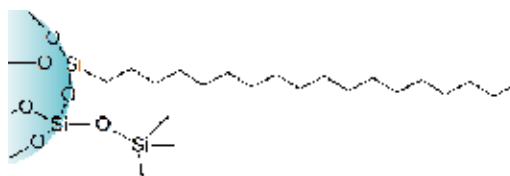
SPE cartridges generally include traditional silica-based SPE cartridges and inorganic chemical based SPE cartridges. GVS independently researches and develops sorbents to ensure its stability and performance. Normal phase, reverse phase, and ion exchange phase are available to improve sample preparation efficiency.

C18 A Ordering information

Product Code	Description	Qty.
SPEB0C18A01100A	100mg/1mL	100 Pcs/Box
SPEB0C18A03200A	200mg/3mL	50 Pcs/Box
SPEB0C18A03500A	500mg/3mL	50 Pcs/Box
SPEB0C18A06500A	500mg/6mL	30 Pcs/Box
SPEB0C18A061000A	1000mg/6mL	30 Pcs/Box
SPEB0C18A121000A	1000mg/12mL	20 Pcs/Box
SPEB0C18A122000A	2000mg/12mL	20 Pcs/Box

C18 Endcapped Octadecyl

Extracting non-polar compounds



Specifications

Carbon content: 17.6% Surface area: 300 m²/g

Particle size: 40 - 60 μm Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB00C1801100A	100mg/1mL	100 Pcs/Box
SPEB00C1803060A	60mg/3mL	50 Pcs/Box
SPEB00C1803200A	200mg/3mL	50 Pcs/Box
SPEB00C1803500A	500mg/3mL	50 Pcs/Box
SPEB00C1806500A	500mg/6mL	30 Pcs/Box
SPEB00C18061000A	1000mg/6mL	30 Pcs/Box
SPEB00C18121000A	1000mg/12mL	20 Pcs/Box
SPEB00C18122000A	2000mg/12mL	20 Pcs/Box
SPEB00C1803250A	250mg/3mL	50 Pcs/box
SPEB00C1803300A	300mg/3mL	50 Pcs/Box
SPEB00C1806200A	200mg/6mL	30 Pcs/Box
SPEB00C1806300A	300mg/6mL	30 Pcs/Box
SPEB00C18065000A	5g/60mL	12 Pcs/Box

Note: equivalent to Waters Sep-Pak tC18/C18, Agilent Bond Elut C18, Supelco Supelclean ENVI-18

Chromatography

C18N Unendcapped Octadecyl

Extracting polar and non-polar compounds



Specifications

Carbon content: 17% Surface area: 300 m²/g
Particle size: 40 - 75 µm Pore size: 70 Å

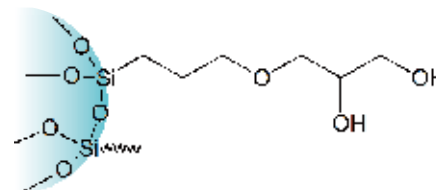
Ordering information

Product Code	Description	Qty.
SPEB0C18N01100A	100mg/1mL	100 Pcs/Box
SPEB0C18N03200A	200mg/3mL	50 Pcs/Box
SPEB0C18N03500A	500mg/3mL	50 Pcs/Box
SPEB0C18N06500A	500mg/6mL	30 Pcs/Box
SPEB0C18N061000A	1000mg/6mL	30 Pcs/Box
SPEB0C18N121000A	1000mg/12mL	20 Pcs/Box
SPEB0C18N122000A	2000mg/12mL	20 Pcs/Box
SPEB0C18N06200A	200mg/6mL	30 Pcs/Box
SPEB0C18N06300A	300mg/6mL	30 Pcs/Box
SPEB0C18N605000A	5g/60mL	12 Pcs/Box

Note: equivalent to Agilent Bond Elut C18-OH

Diol Dihydroxy

Extracting polar compounds



Specifications

Surface area: 290 m²/g Carbon content: 5.5%
Particle size: 40-75 µm Pore size: 70 Å

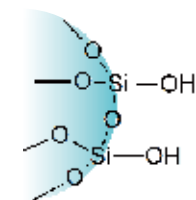
Ordering information

Product Code	Description	Qty.
SPEB0DIOL01100A	100mg/1mL	100 Pcs/Box
SPEB0DIOL03200A	200mg/3mL	50 Pcs/Box
SPEB0DIOL03500A	500mg/3mL	50 Pcs/Box
SPEB0DIOL06500A	500mg/6mL	30 Pcs/Box
SPEB0DIOL061000A	1000mg/6mL	30 Pcs/Box
SPEB0DIOL121000A	1000mg/12mL	20 Pcs/Box
SPEB0DIOL122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak Diol & Agilent Bond Elut 20H

Silica Unbounded Silica Gel

Extracting polar compounds



Specifications

Surface area: 480 m²/g
Particle size: 40 - 75 µm
Pore size: 70 Å

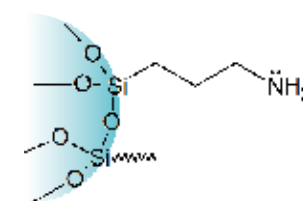
Ordering information

Product Code	Description	Qty.
SPESILIC01100A	100mg/1mL	100 Pcs/Box
SPESILIC03100A	100mg/3mL	50 Pcs/Box
SPESILIC03200A	200mg/3mL	50 Pcs/Box
SPESILIC03500A	500mg/3mL	50 Pcs/Box
SPESILIC06500A	500mg/6mL	30 Pcs/Box
SPESILIC061000A	1000mg/6mL	30 Pcs/Box
SPESILIC062000A	2g/6mL	30 Pcs/Box
SPESILIC121000A	1000mg/12mL	20 Pcs/Box
SPESILIC122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut Silica & Waters Sep-Pak Silica

NH₂ Aminopropyl

Extracting moderately polar and acidic compounds



Specifications

Surface area: 200 m²/g Carbon content: 4.5%
Particle size: 40-75 µm Pore size: 70 Å

Ordering information

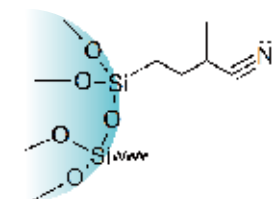
Product Code	Description	Qty.
SPEB00NH201100A	100mg/1mL	100 Pcs/Box
SPEB00NH203200A	200mg/3mL	50 Pcs/Box
SPEB00NH203250A	250mg/3mL	50 Pcs/box
SPEB00NH203500A	500mg/3mL	50 Pcs/Box
SPEB00NH206500A	500mg/6mL	30 Pcs/Box
SPEB00NH2061000A	1000mg/6mL	30 Pcs/Box
SPEB00NH2121000A	1000mg/12mL	20 Pcs/Box
SPEB00NH2122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak NH₂ & Agilent Bond Elut NH₂

Chromatography

CN Cyanopropyl

Extracting polar and non-polar compounds, enriching metal ions



Specifications

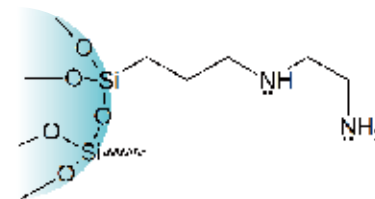
Surface area: 280 m²/g Carbon content: 5.8%
Particle size: 40 - 75 µm Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB000CN01100A	100mg/1mL	100 Pcs/Box
SPEB000CN03200A	200mg/3mL	50 Pcs/Box
SPEB000CN03500A	500mg/3mL	50 Pcs/Box
SPEB000CN06500A	500mg/6mL	30 Pcs/Box
SPEB000CN061000A	1000mg/6mL	30 Pcs/Box
SPEB000CN122000A	2000mg/12mL	20 Pcs/Box

PSA Primary-Secondary Amine

Extracting strong acids, polar compounds and metal ions



Specifications

Surface area: 500 m²/g Carbon content: 8%
Particle size: 50-75 µm Pore size: 70 Å

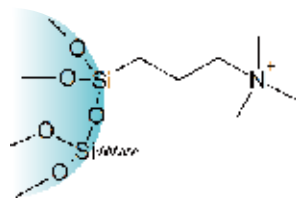
Ordering information

Product Code	Description	Qty.
SPEB00PSA01100A	100mg/1mL	100 Pcs/Box
SPEB00PSA03200A	200mg/3mL	50 Pcs/Box
SPEB00PSA03500A	500mg/3mL	50 Pcs/Box
SPEB00PSA06500A	500mg/6mL	30 Pcs/Box
SPEB00PSA061000A	1000mg/6mL	30 Pcs/Box
SPEB00PSA121000A	1000mg/12mL	20 Pcs/Box
SPEB00PSA122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut PSA

SAX Strong Anion Exchange

Extracting acidic compounds



Specifications

Surface area: 510 m²/g Particle size: 40-75 µm
Pore size: 70 Å

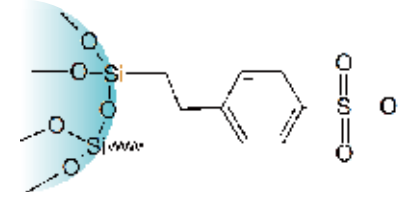
Ordering information

Product Code	Description	Qty.
SPEB00SAX01030A	30mg/1mL	100 Pcs/Box
SPEB00SAX01060A	60mg/1mL	100 Pcs/Box
SPEB00SAX01100A	100mg/1mL	100 Pcs/Box
SPEB00SAX03060A	60mg/3mL	50 Pcs/Box
SPEB00SAX03200A	200mg/3mL	50 Pcs/Box
SPEB00SAX03500A	500mg/3mL	50 Pcs/Box
SPEB00SAX06200A	200mg/6mL	30 Pcs/Box
SPEB00SAX06500A	500mg/6mL	30 Pcs/Box
SPEB00SAX061000A	1000mg/6mL	30 Pcs/Box
SPEB00SAX121000A	1000mg/12mL	20 Pcs/Box
SPEB00SAX122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Supelco Supelclean LC-SAX

SCX Strong Cation Exchange

Extracting basic compounds



Specifications

Surface area: 510 m²/g Particle size: 40 - 75 µm
Pore size: 70 Å

Ordering information

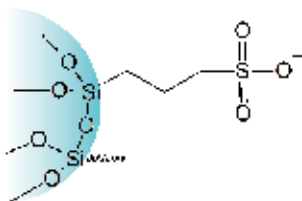
Product Code	Description	Qty.
SPEB00SCX01030A	30mg/1mL	100 Pcs/Box
SPEB00SCX01100A	100mg/1mL	100 Pcs/Box
SPEB00SCX03060A	60mg/3mL	50 Pcs/Box
SPEB00SCX03200A	200mg/3mL	50 Pcs/Box
SPEB00SCX03500A	500mg/3mL	50 Pcs/Box
SPEB00SCX06200A	200mg/6mL	30 Pcs/Box
SPEB00SCX06500A	500mg/6mL	30 Pcs/Box
SPEB00SCX061000A	1000mg/6mL	30 Pcs/Box
SPEB00SCX121000A	1000mg/12mL	20 Pcs/Box
SPEB00SCX122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak CN

Chromatography

PRS Propylsulfonic Acid

Extracting weak bases in biological fluids



Specifications

Surface area: 310 m²/g Carbon content: 4.5%
Particle size: 40-75 µm Pore size: 70 Å

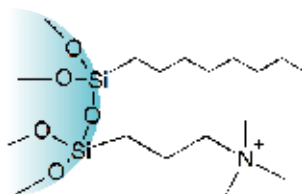
Ordering information

Product Code	Description	Qty.
SPEB00PRS01100A	100mg/1mL	100 Pcs/Box
SPEB00PRS03200A	200mg/3mL	50 Pcs/Box
SPEB00PRS03500A	500mg/3mL	50 Pcs/Box
SPEB00PRS06500A	500mg/6mL	30 Pcs/Box
SPEB00PRS061000A	1000mg/6mL	30 Pcs/Box
SPEB00PRS121000A	1000mg/12mL	20 Pcs/Box
SPEB00PRS122000A	2g/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut PRS

C8/SAX Octyl/Strong Anion Exchange

Extracting acidic drugs in biological fluids



Specifications

Surface area: 510 m²/g Particle
size: 40-75 µm
Pore size: 70 Å

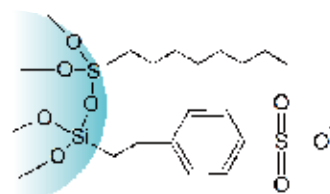
Ordering information

Product Code	Description	Qty.
SPEBC8SAX01100A	100mg/1mL	100 Pcs/Box
SPEBC8SAX01030A	30mg/1mL	100 Pcs/Box
SPEBC8SAX03200A	200mg/3mL	50 Pcs/Box
SPEBC8SAX03500A	500mg/3mL	50 Pcs/Box
SPEBC8SAX06200A	200mg/6mL	30 Pcs/Box
SPEBC8SAX06500A	500mg/6mL	30 Pcs/Box
SPEBC8SAX061000A	1000mg/6mL	30 Pcs/Box
SPEBC8SAX121000A	1000mg/12mL	20 Pcs/Box
SPEBC8SAX122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut Certify II & Phenomenex Screen-A

C8/SAX Octyl/Strong Anion Exchange

Extracting acidic drugs in biological fluids



Specifications

Surface area: 510 m²/g Particle size: 40-75 µm
Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEBC8SCX01030A	30mg/1mL	100 Pcs/Box
SPEBC8SCX01100A	100mg/1mL	100 Pcs/Box
SPEBC8SCX03200A	200mg/3mL	50 Pcs/Box
SPEBC8SCX03500A	500mg/3mL	50 Pcs/Box
SPEBC8SCX06200A	200mg/6mL	30 Pcs/Box
SPEBC8SCX06500A	500mg/6mL	30 Pcs/Box
SPEBC8SCX061000A	1000mg/6mL	30 Pcs/Box
SPEBC8SCX121000A	1000mg/12mL	20 Pcs/Box
SPEBC8SCX122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Agilent Bond Elut Certify & Phenomenex Screen-C

Carb-GCB Graphitized Carbon Black

Extracting herbicides in drinking water

Specifications

Surface area: 100 m²/g Particle
size: 100-300 mesh

Ordering information

Product Code	Description	Qty.
SPEB00GCB03500A	500mg/3mL	50 Pcs/Box
SPEB00GCB03250A	250mg/3mL	50 Pcs/Box
SPEB00GCB06500A	500mg/6mL	30 Pcs/Box
SPEB00GCB061000A	1000mg/6mL	30 Pcs/Box

Note: equivalent to Agilent Bond Elut Carbon

Carb-GCB/PSA

Graphitized Carbon Black/ Primary- Secondary Amine Bilayer

Cleanup of samples in multiresidual pesticide analysis

Specifications

Surface area: 100 m²/g Particle size: 100-300 mesh

PSA Specifications

Surface area: 500 m²/g Carbon content: 8%
Particle size: 40-75 µm Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB0PSGC065X5A	500mg/500mg/6mL	30 Pcs/Box

Chromatography

Carb-GCB/NH₂

Graphitized Carbon Black/Aminopropyl Bilayer

Cleanup of samples in multiresidual pesticide analysis

GCB Specifications

Surface area: 100 m²/g Particle size: 100-300 mesh

NH₂ Specifications

Carbon content: 4.5% Surface area: 200 m²/g

Particle size: 40 - 75 µm Pore size: 70 Å

Ordering information

Product Code	Description	Qty.
SPEB0NHGC065X5A	500mg/500mg/6mL	30 Pcs/Box
SPEB0NHGC065X2A	500mg/250mg/6mL	30 Pcs/Box
SPEB0NHGC065X5A	500mg/500mg/6mL	30 Pcs/Box
SPEB0NHGC121X1A	1g/1g/12mL	20 Pcs/Box

Florisil Pesticide Grade

Extracting multiresidual pesticides

Specifications

Particle size: 150 - 250 µm

Ordering information

Product Code	Description	Qty.
SPEBFLOI01100A	100mg/1mL	100 Pcs/Box
SPEBFLOI03200A	200mg/3mL	50 Pcs/Box
SPEBFLOI03500A	500mg/3mL	50 Pcs/Box
SPEBFLOI06500A	500mg/6mL	30 Pcs/Box
SPEBFLOI061000A	1000mg/6mL	30 Pcs/Box
SPEBFLOI121000A	1000mg/12mL	20 Pcs/Box
SPEBFLOI122000A	2000mg/12mL	20 Pcs/Box

ALA, ALN, ALB, Alumina

Extracting aromatic amines

Specifications

Surface area >150 m²/g

pH: Acidic Alumina pH 4.0

Neutral Alumina pH 7.0

Basic Alumina pH 9.5

Ordering information

① Acidic Alumina (ALA)

Product Code	Description	Qty.
SPEB00ALA01100A	100mg/1mL	100 Pcs/Box
SPEB00ALA03200A	200mg/3mL	50 Pcs/Box
SPEB00ALA03500A	500mg/3mL	50 Pcs/Box
SPEB00ALA06500A	500mg/6mL	30 Pcs/Box
SPEB00ALA061000A	1g/6mL	30 Pcs/Box
SPEB00ALA062000A	2g/6mL	30 Pcs/Box
SPEB00ALA121000A	1g/12mL	20 Pcs/Box
SPEB00ALA122000A	2g/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak Alumina-A

② Neutral Alumina(ALN)

Product Code	Description	Qty.
SPEB00ALN01100A	100mg/1mL	100 Pcs/Box
SPEB00ALN03200A	200mg/3mL	50 Pcs/Box
SPEB00ALN03500A	500mg/3mL	50 Pcs/Box
SPEB00ALN06500A	500mg/6mL	30 Pcs/Box
SPEB00ALN061000A	1000mg/6mL	30 Pcs/Box
SPEB00ALN062000A	2g/6mL	20 Pcs/Box
SPEB00ALN121000A	1000mg/12mL	20 Pcs/Box
SPEB00ALN122000A	2000mg/12mL	20 Pcs/Box
SPEB00ALN124000A	4g/12mL	20 Pcs/Box
SPEB00ALN125000A	5g/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak Alumina-N

③ Basic Alumina(ALB)

Product Code	Description	Qty.
SPEB00ALB01100A	100mg/1mL	100 Pcs/Box
SPEB00ALB03200A	200mg/3mL	50 Pcs/Box
SPEB00ALB03500A	500mg/3mL	50 Pcs/Box
SPEB00ALB06500A	500mg/6mL	30 Pcs/Box
SPEB00ALB061000A	1000mg/6mL	30 Pcs/Box
SPEB00ALB062000A	2g/6mL	30 Pcs/Box
SPEB00ALB121000A	1000mg/12mL	20 Pcs/Box
SPEB00ALB122000A	2000mg/12mL	20 Pcs/Box

Note: equivalent to Waters Sep-Pak Alumina-B

Mycotoxin Clean-up Columns

Mycotoxin Rapid Testing Solutions

Mycotoxin immunoaffinity column is an affinity chromatography column made by the principle of immunoaffinity chromatography for the analysis of antigens. After extraction, dilution, and column passing, most impurities can be removed.

General Procedures of Mycotoxin Clean-Up Columns



① Activating



② Washing & Eluting



③ Concentration



④ Filtration



⑤ Analysis

Aflatoxin Immunoaffinity Columns

Aflatoxin is a highly toxic substance, which is harmful to human and animal liver tissues. Aflatoxin Immunoaffinity Columns are based on the antigen-antibody specific reaction, binding the antibody to the gel to combine with aflatoxin specificity, thereby achieving the effect of separation and purification.



Ordering information

Product Code	Description	Qty.
IMMBAFLT0001A	Aflatoxin B1,B2,G1,G2 , 1mL	25 Pcs/Box
IMMBAFLT0003A	Aflatoxin B1,B2,G1,G2 , 3mL	20 Pcs/Box
IMMBAFLB1001A	Aflatoxin B1, 1mL	25 Pcs/Box
IMMBAFLB1003A	Aflatoxin B1, 3mL	20 Pcs/Box
IMMBAFLM1001A	Aflatoxin M1, 1mL	25 Pcs/Box
IMMBAFLM1003A	Aflatoxin M1, 3mL	20 Pcs/Box

Zearalenone Immunoaffinity Columns

Zearalenone is widely found in moldy corn, sorghum, wheat, oats, barley and other cereal crops and milk, and is the most widely contaminated Fusarium toxin in the world. It has estrogenic effects, mainly acts on the reproductive system, and is very harmful to humans and animals. Zearalenone Immunoaffinity Columns can be used to extract and enrich zearalenone from samples ,which makes high targeted purification performance come true.



Ordering information

Product Code	Description	Qty.
IMMBZEARA001A	Zearalenone, 1mL	25 Pcs/Box
IMMBZEARA003A	Zearalenone, 3mL	20 Pcs/Box

Four-in-one (ADOZ) Immunoaffinity Columns

ADOZ immunoaffinity column is suitable for the purification of aflatoxin B1, B2, G1, G2, zearalenone, DON, ochratoxin A in samples of grain, food, feed, nuts, peanuts, soy sauce, etc. This method can treat four toxins at one time, greatly improving the pretreatment efficiency, and the recoveries of the four toxins can reach more than 80%.

Ordering information

Product Code	Description	Qty.
IMMBFIOAD003A	3mL	10 Pcs/Box

Deoxynivalenol Immunoaffinity Columns

DON, also known as deoxynivalenol, is mostly distributed in wheat, barley, corn and other grains, and has a certain harmful effect on the human body. It is three-level carcinogen in the EU classification standard. DON Immunoaffinity Columns can selectively separate deoxynivalenol from the sample by the specific binding of antibody and antigen to achieve good purification effect.



Ordering information

Product Code	Description	Qty.
IMMBDEOXY001A	Deoxynivalenol, 1mL	25 Pcs/Box
IMMBDEOXY003A	Deoxynivalenol, 3mL	20 Pcs/Box

Ochratoxin A Immunoaffinity Columns

Ochratoxin A is very common in moldy grains and feed. It comes from the aspergillus and penicillium on various crops (wheat, corn, barley, oats, rye, rice and millet), peanuts, vegetables (beans), etc., which cause enormous harm to the kidneys and livers of human and animal. Ochratoxin A immunoaffinity column can selectively adsorb ochratoxin A in the sample extract, so as to have a very targeted purification effect on ochratoxin A in the sample solution.



Ordering Information

Product Code	Description	Qty.
IMMBORCRA001A	Ochratoxin A, 1mL	25 Pcs/Box
IMMBORCRA003A	Ochratoxin A, 3mL	20 Pcs/Box

T-2 Toxin Immunoaffinity Columns

T-2 toxin is a mycotoxin produced by a variety of *Fusarium* species. It mainly pollutes wheat, barley, corn and other food crops and their products, and poses great harm to human health and animal husbandry. T-2 toxin immunoaffinity column can selectively adsorb the T-2 toxin in the sample solution to specifically purify T-2 toxin. The purified sample solution can be directly used in the liquid phase test.

Ordering information

Product Code	Description	Qty.
IMMBT2TOX001A	T-2 toxin, 1mL	25 Pcs/Box
IMMBT2TOX003A	T-2 toxin, 3mL	20 Pcs/Box

Fumonisin FB Immunoaffinity Column

Fumonisin FB is a mycotoxin, which is a watersoluble metabolite produced by *Fusarium moniliforme*. It is a kind of diester compound composed by different polyhydric alcohols and glycerol tricarboxylic acid. Fumonisin has FA1, FA2, FB1, FB2, FB3 etc. FB1 is the main component.

Ordering information

Product Code	Description	Qty.
IMMBFUMFB003A	Fumonisin FB, 3mL	20 Pcs/Box

Tetrodotoxin Immunoaffinity Column

Tetrodotoxin is an amino perhydro quinazolin compound, which is one of the most toxic neurotoxins found in nature. It was once considered to be the most toxic non-protein toxin in nature. The toxin has a local stimulating effect on the intestinal tract. After absorption, it acts on nerve endings and nerve centers rapidly. It can block sodium ion channels on nerve excitation membrane with high selectivity and affinity, and block nerve conduction, thus causing nerve paralysis and death. Tetrodotoxin immunoaffinity column has a strong targeted purification effect on the extraction and enrichment of tetrodotoxin.

Ordering information

Product Code	Description	Qty.
IMMBTETRO003A	Tetrodotoxin, 3mL	20 Pcs/Box



Chromatography

Multi-Functional Purification Column

Multi-Functional Purification Column contains multiple adsorption matrices to adsorb quickly and selectively of lipids, organic acids, proteins, pigments and other impurities. The matrices do not absorb the target to realize fast purification.

Features

- A Complete purification in 30s
- A Easy operation and high efficiency
- A Stored at room temperature for more than 18 months
- A Recovery rate $\geq 90\%$, RSD $\leq 5\%$

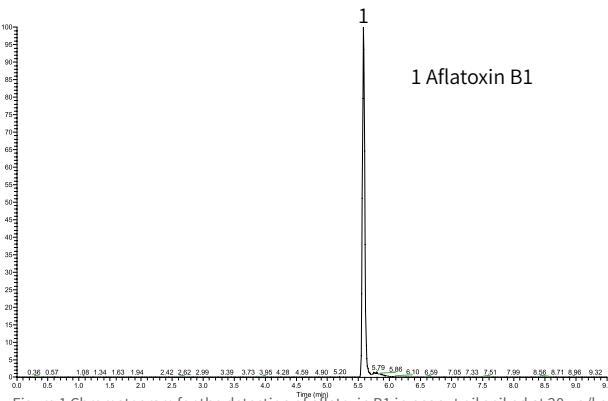


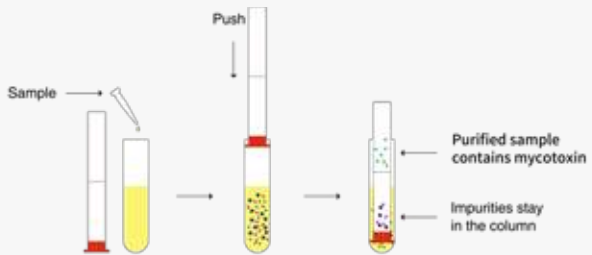
Figure 1 Chromatogram for the detection of aflatoxin B1 in peanut oil spiked at 20 µg/kg

Table 1 Recovery of aflatoxin B1 in 20 µg/kg peanut oil

Compound	Recovery (%)	Average recoveries (%)	RSD (%)	Average recoveries (%)	RSD (%)
1	2	3			
Aflatoxin B1	81.9	84.5	82.4	82.9	1.7

Procedures

1. Extract sample.
2. Add the extracted sample to the test tube and insert the rubber-tipped end of the purification column into the test tube.
3. Push the purification column to the bottom of the test tube.
4. The purified sample passes through sorbent to the top of the purification column.
5. The purified sample can be analyzed after concentrate.



Ordering information

Product Code	Description	Application	Qty.
CUCMFP1819A	228 Multi-Functional Purification Column	Patulin, Aflatoxin B1 B2 G1 G2	25 Pcs/Box
CUCMFP1820A	226 Multi-Functional Purification Column	Zearalenone, Aflatoxin B1 B2 G1 G2	25 Pcs/Box
CUCMFP1821A	224 Multi-Functional Purification Column	Zearalenone	25 Pcs/Box
CUCMFP1823A	223 Multi-Functional Purification Column	Aflatoxin M1 M2	25 Pcs/Box
CUCMFP1824A	230 Multi-Functional Purification Column	Deoxynivalenol	25 Pcs/Box
CUCMFP1818A	229 Multi-Functional Purification Column	Ochratoxin A	25 Pcs/Box
CUCMFP1822A	302 Multi-Functional Purification Column	Multiple functions	25 Pcs/Box

Special SPE Cartridges

Cartridges for Ion chromatography Preparation

In ion chromatography, organic, metal and other interfering ions may affect the analysis of target compounds. The pretreatment columns are based on the principle of reversed phase adsorption or ion exchange, can effectively remove interferences and ensure the accuracy of the results.

Ordering information

Product Code	Description	Format	Qty.
SPEB0IC18001A	C18 cartridge	300mg	50 Pcs/Box
SPEB0IC0H001A	H cartridge	1mL	50 Pcs/Box
SPEB0ICNA001A	Na cartridge	1mL	50 Pcs/Box

Destaining Cartridges for Chrome (VI) Testing

Chrome (VI) in leather articles are converted from Chrome (III) in the process of leather production. The toxic substance has been banned by China and EU. To determine Chrome (VI), pigments in leather should be removed firstly.

Destaining cartridges for Chrome (VI) testing are dedicatedly optimized, capable of helping you remove pigments.

Features

- A Optimized for destaining leather samples
- A Improved recovery and repeatability
- A Complying with official methods

Applications

- A Determination of Chrome (VI) in leather

Ordering information

Product Code	Description	Qty.
SPEB0PACR121000A	1000mg/12mL	20 Pcs/Box

Polyamide(PA) SPE Cartridges

For Testing Artificial Color in Extraction Samples

PA is a macromolecule substance polymerized by Amide monomer(hexanolactam, adipamide, Oxalic acid), its amido linkage is easily to bring Hydrogen bond with other Polar bond groups, this enables to remove interferents such as artificial color from samples, this is used for testing artificial color.

PA SPE cartridges are filled with special optimized PA sorbent

which enables its good decoloring and high recovery.



Specifications

- A Particle Size: 100-200 mesh

Ordering information

Product Code	Description	Qty.
SPEB0PACR03500A	500mg/3mL	50 Pcs/Box
SPEB0PACR06500A	500mg/6mL	30 Pcs/Box
SPEB0PACR061000A	1000mg/6mL	30 Pcs/Box

Cartridges for Plasticizer Testing Determination of phthalate esters

Plasticizers are currently used in plastic and packaging food contact materials and their products are mostly phthalate esters (PAEs), some of which are carcinogenic and reproductively toxic. As toxic PAEs leached into food cause health risks for human beings, their use is strictly limited in EU, the U.S., China, Japan, etc.

GVS cartridges for plasticizer testing are made of glass tubes and PTFE frits that prevent impurities from being introduced into the sample. Dedicatedly optimized PSA sorbent also enables thorough cleanup and satisfactory recoveries for official methods.

Features

- A Chemically inert glass tubes
- A High purity PTFE frits
- A Satisfactory recoveries for official methods

Applications

- A Determination of phthalate esters in foods



Ordering information

Product Code	Description	Qty.
SPEB00PAE065X5A	500mg/500mg/6mL	30 Pcs/Box

QuEChERS

QuEChERS

In 2003, Michelangelo Anastassiades and Steven J. Lehotay developed a dispersive SPE (dSPE) method called QuEChERS (Quick, Easy, Cheap, Effective, Rugged, and Safe) to simplify the preparation of food samples pesticide analysis. The groundbreaking preparation method is widely applied to pollution tests in food safety, environmental water samples and soil pollutants.

GVS offers various centrifuge tubes, extraction tubes, purification tubes in different specifications to help you establish standard detection quickly.

Features

- Good recovery rate for most pesticides, veterinary drugs and additives
- Fewer steps to limit manual error
- More friendly to the operators and environment
- Simple, quick and inexpensive

Standards

- AEN 15662 Foods of Plant Origin - Determination of pesticide residues using GC-MS and/or LC-MS/MS following acetonitrile extraction/partitioning and clean-up by dispersive SPE - QuEChERS-method
- AOAC Official Method 2007.01 Pesticide Residues in Foods by Aceton

General Procedures of Mycotoxin Clean-Up Columns



① Weight Sample & Add Acetonitrile



② Vortex



③ Add QuEChERS Salts



④ Mix Well & Centrifuge



⑤ Add supernatant to A QuEChERS Clean Up Tube



⑥ Vortex



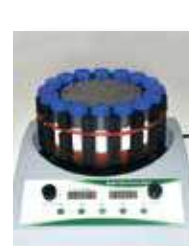
⑦ Centrifuge



⑧ Concentration



⑨ Filtration



⑩ Analysis

QuEChERS Extraction Kits

QuEChERS Extraction Kits include extraction pouches and 50 mL centrifuge tubes, ceramic homogenizers are optional as well. The pouches contain anhydrous extraction salts. Among the mixture, MgSO₄ is responsible for removing water from samples, while other components are responsible for maintaining appropriate pH to ensure the recoveries of alkaline-sensitive pesticides.

Directly adding water-abundant samples into tubes containing extraction salts may cause local overheating which compromise the resulting recoveries. To avoid such situations, GVS provides separate extraction salt pouches that the operator can add extraction salts after the addition of organic solvents.

Features

- A The salts are sealed in aluminum foil bags to avoid leakage.
- A The compositions are printed on the bag for handy choice. The easy-tear package is very convenient for use.
- A Automated powder dispensing & packaging assembly line promise the accuracy and repeatability.

Ordering information

AOAC 2007.01 Kits

Product Code	Description	Sorbents	Qty.
QUEB50X20YHA	Extraction Salts+50 mL Tube	6 g MgSO ₄	50 Pcs/Box
QUEB50X20CHA	Extraction Salts+50 mL Tube+Ceramic Homogenizers	1.5 g NaOAc	50 Pcs/Box

EN 15662 Kits

Product Code	Description	Sorbents	Qty.
QUEB50X10YHA	Extraction Salts+50 mL Tube	4 g MgSO ₄ 1 g NaCl	50 Pcs/Box
QUEB50X10CHA	Extraction Salts+50 mL Tube+Ceramic Homogenizers	1 g Trisodium Citrate 0.5 g Disodium Citrate	50 Pcs/Box

Clean-Up Kits

QuEChERS Clean-Up Kits include sorbents and anhydrous MgSO₄, 2 mL and 15 mL centrifuge tubes, ceramic homogenizers are optional as well.

Features

- A Supply 2 mL or 15 mL clean-up tubes

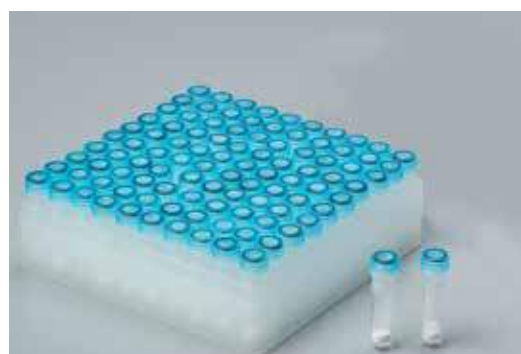
Ordering information

BS EN 15662: 2018 Kits

Product Code	Format	Application	Sorbents	Qty.
QUEB15X22YHA	15 mL	General fruits and vegetables	150 mg PSA, 900 mg MgSO ₄	50 Pcs/Box
QUEB15X32YHA	15 mL	General fruits and vegetables with fats and waxes	150 mg PSA, 150 mg C18, 900 mg MgSO ₄	50 Pcs/Box

Ceramic Homogenizers

Product Code	Description	Qty.
QUEBCER15YYA	Ceramic Homogenizers, 15 mL	100/Bottle
QUEBCER02YYA	Ceramic Homogenizers, 2 mL	200/Bottle



Chromatography

QuEChERS Bulk Sorbents

GVS provides superior quality QuEChERS bulk sorbents which have been verified by our lab. You can choose the ratio according to the needs of the experiment.

Features

Supply 2 mL or 15 mL clean-up tubes

Suitable for AOAC 2007, EN 15662 standards, etc.



Ordering information

Product Code	Sorbent	Specification	Qty.
SPESORB00PSA2100A	PSA	Carbon Content: 8%, Surface area: 480 m ² /g, Particle size: 50-75 µm, Pore size: 70 Å	100 g
SPESORB00C181100A	C18	Carbon Content: 17.6%, Surface area: 300 m ² /g, Particle size: 40-75 µm, Pore size: 70 Å	100 g
SPESORB00GCB1050A	Carb-GCB	Surface area: 100 m ² /g, Particle size: 100-300 mesh	50 g

QuEChERS Ceramic Homogenizers

GVS Ceramic Homogenizers can be used in QuEChERS extraction kit and clean-up kit to improve extraction recovery and reproducibility.

Features

Inert ceramic material, no impurities dissolution

Shorten sample extraction time and reduce labor cost

Improve recovery rate and reproducibility of sample extraction



Ordering information

Product Code	Description	Qty.
QUEBCER02YYA	Ceramic Homogenizers, 50 mL	100 Pcs/Box
QUEBCER15YYA	Ceramic Homogenizers, 15 mL	100 Pcs/Box
QUEBCER50YYA	Ceramic Homogenizers, 2 mL	200 Pcs/Box

Empty Spin Columns with Filters



Ordering information

Product Code	Description	Qty.
SCB020C17400A	2 mL Empty Spin Columns, outer tubes, capped inner tubes, UHMW-PE frits and fixing rings	1000 Pcs /PK
SCB020C17410A	2 mL Empty Spin Columns, capped outer tubes, inner tubes, UHMW-PE frits and fixing rings	1000 Pcs /PK
SCB020C17700A	2 mL Empty Micro Spin Columns, capped outer tubes, Inner Tubes, UHMW-PE frits and fixing rings	1000 Pcs /PK
SCB015C17600A	15mL Empty Spin Columns, outer tubes, inner tubes, UHMW-PE frits and fixing rings"	50 Pcs /PK
SCB500C17500A	50 mL Empty Spin Columns, outer tubes, inner tubes, UHMW-PE frits and fixing rings	10 Pcs /PK



Lysis-Filtration Columns

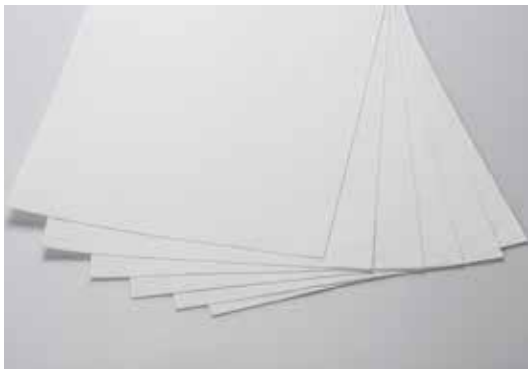


Ordering information

Product Code	Description	Qty.
SCB015B1001A	1.5 mL Lysis-filtration column, cappless spin column	500 Pcs/PK
SCB015B10011SA	1.5 mL Lysis-filtration column, cappless spin column, sterile	100 Pcs/PK
SCB020B1002A	2.0 mL Lysis-filtration column, cappless spin column	500 Pcs/PK
SCB020B10021SSA	2.0 mL Lysis-filtration column, cappless spin column, sterile	50 Pcs/PK
SCB020B10022A	2.0 mL Lysis-filtration column, capped spin column	100 Pcs/PK
SCB020B10022SA	2.0 mL Lysis-filtration column, capped spin column, sterile	100 Pcs/PK



Silica Membrane



GVS Silica membrane is a key component in spin columnbased nucleic acid purification technology. Under low pH and chaotropic conditions, nucleic acids specifically bind to silica membrane while polysaccharides and proteins pass through. Impurities are further removed by washing. Finally, under low-salt conditions, nucleic acids are desorbed and eluted from the membrane.

Features

- A High quality with high yield and good reproducibility
- A Suitable for spin columns or plates

Ordering information

Product Code	Description	Qty.
NAEB181828A	Silica Membrane, 210*297 mm/Sheet	100 Sheet/PK



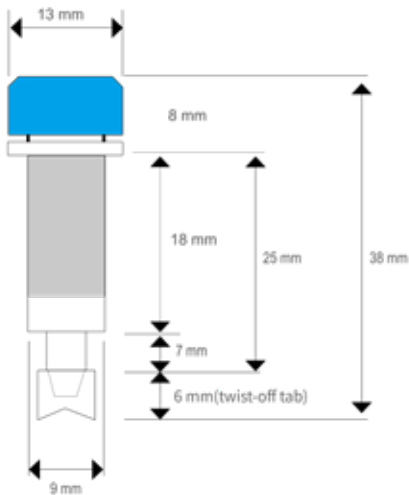
Empty Screw Cap Spin Columns



GVS Empty Screw Cap Spin Columns are designed for small volume protein purification, which can be filled with different chromatography media such as agarose, dextran, ion exchange resin, biogel and etc. The principle is centrifugation to purify protein quickly.

Direction

Load affinity resin and other fillers into the spin column. After the filler deposit automatically, gently remove the twists off bottom and allow the excess buffer flow out. Load the sample to combine, then, centrifuge to remove unbound impurities. Finally, elute purified products.



Features

- A Columns are made of medical polypropylene with polyethylene frits, ensuring minimal protein-binding properties
- A Compatible with 1.5 mL and 2.0 mL centrifuge tubes
- A Capacity: 800 μ L
- A Resin volume: 40-400 μ L
- A O-ring screw top caps and twist-off bottom

Ordering information

Product Code	Description	Qty.
SCB008A5001A	800 μ L Empty Screw Cap Spin Columns, Hydrophilic	50 Pcs/Box
SCB008A5002A	800 μ L Empty Screw Cap Spin Columns, Hydrophobic	50 Pcs/Box

Empty Micro-spin Chromatography Columns



GVS Empty Micro-spin Chromatography Columns are designed for easy and efficient small-scale protein purification. Researchers can pack a wide range of chromatography resins to purify proteins of interest using a microcentrifuge.

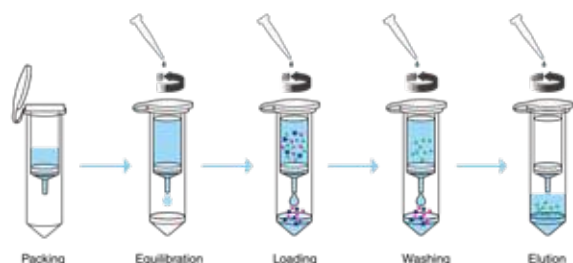
Researchers can pack columns with their own chromatographic media using different separation mechanisms (e.g., immunoaffinity, ion exchange, size exclusion, reverse phase) to realize various applications.

Features

- A Tubes are made of high quality medical-grade polypropylene
- A Sintered UHMW-PE Frits with excellent solvent compatibility
- A Suitable for 1.5 mL and 2.0 mL microcentrifuge tubes
- A Volume of spin column: 800 μ L
- A Volume of resin: 20-500 μ L

Applications

Affinity chromatography, desalting, IP, co-IP



Ordering information

Product Code	Description	Qty.
SCB020A1001A	2 mL Empty Micro-spin Chromatography Columns, including Collection Tubes (2.0 mL), Spin Columns (800 μ L, with lids), Frits and Bottom Caps	100 Pcs/PK
SCB020A1101A	2 mL Empty Micro-spin Chromatography Columns, including Collection Tubes (2.0 mL), Spin Columns (800 μ L, without lids), Frits and Bottom Caps	100 Pcs/PK
SCB015A1102A	1.5 mL Empty Micro-spin Chromatography Columns, including Collection Tubes (1.5 mL), Spin Columns (800 μ L, without lids), Frits and Bottom Caps	100 Pcs/PK

Empty Spin Chromatography Columns



GVS Empty Spin Chromatography Columns are designed for easy and efficient large-scale protein purification.

Features

- A Tubes are made of high quality medical-grade polypropylene
- A Sintered UHMW-PE Frits with excellent solvent compatibility
- A Suitable for 15 mL and 50 mL centrifuge tubes
- A Volume of spin column: 4 mL/22 mL

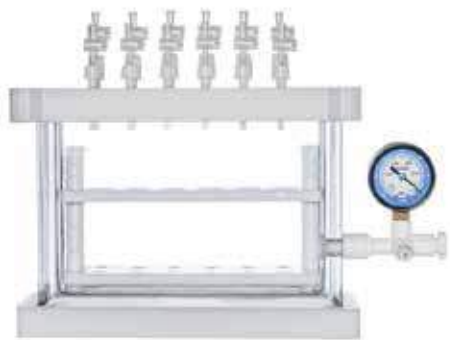
Application

Affinity chromatography, desalting, IP, co-IP

Ordering information

Product Code	Description	Qty.
SCB150A300A	15 mL Empty Spin Chromatography Columns, including Collection Tubes (15 mL), Spin Columns (4 mL), Frits and Bottom Caps	50 Pcs/PK
SCB500A200A	50 mL Empty Spin Chromatography Columns, including Collection Tubes (50 mL), Spin Columns (22 mL), Frits and Bottom Caps	20 Pcs/PK

Solid Phase Extraction Vacuum Manifolds



12-Port SPE Vacuum Manifold



24-Port SPE Vacuum Manifold

The SPE Vacuum Manifolds realize activating, loading, rinsing, eluting and other processes in SPE sample pretreatment by controlling the pressure.

Features

- Accuracy: individual valves control the flow rate independently
- Compatibility: the height of the test tube rack is adjustable

Parameters

Model	SPMF12G	SPMF24G-S
Ports	12	24
Lid	Polyoxymethylene	Polyoxymethylene
Glass Vacuum Chamber	Quartz	Quartz
Pressure Resistance	-80 Kpa	-80 Kpa
Stable Pressure	0~80 Kpa	0~80 Kpa
Test Tubes	≤ 105 mm, 10/ 13/ 15	≤ 105 mm, 10/ 13/ 15



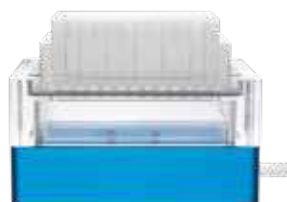
Ordering information

Product Code	Description	Qty.
SPEMANIB12GEA	12-Port SPE Vacuum Manifold, square shape, individual flow valve, transparent glass	1 Set/Carton
SPEMANIB24GSEA	24-Port SPE Vacuum Manifold, square shape, individual flow valve, transparent glass	1 Set/Carton



Vacuum Manifolds

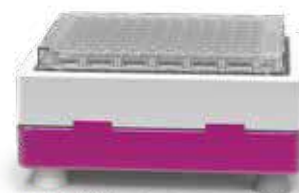
The manifolds are adapted to 48/96/384 well plates and Luer-inlet columns to eliminate repetition of pipetting and centrifugation in traditional nucleic acid extraction methods.



Universal Vacuum Manifolds



Double-Layer



Micro-Filter Plate Vacuum Manifolds

Features

Reliability: made of anti-corrosion and durable material

Uniformity: the compact design ensures uniform flow rate during extraction at negative pressure

Convenience: eliminate repeated operations of centrifugation and pipetting in traditional methods to improve efficiency

Applications

Universal Vacuum Manifolds	Nucleic acid extraction, solid phase extraction, protein precipitation, QuEChERS, phospholipids removal, Oligo synthesis of deprotection, ammonolysis and other processes etc.
Double-Layer Vacuum Manifolds	Enable filtration and extraction at same time for nucleic acid extraction, solid phase extraction, protein precipitation, phospholipids removal, etc.
Micro-Filter Plate Vacuum Manifolds	Protein kinase and phosphatase assays, protein purification, receptor interaction assays, protein binding assays, ELISPOT assays, mass spectrometry, fluorescent dye removal

Ordering information

Product Code	Description	Qty.
MANIFBZZNE03RA	Universal Vacuum Manifolds (rose red)	1 Set/Carton
MANIFBZZNE03BA	Universal Vacuum Manifolds (sapphire blue)	1 Set/Carton
MANIFBZZNE04RA	Double-Layer Vacuum Manifolds (rose red)	1 Set/Carton
MANIFBZZNE04BA	Double-Layer Vacuum Manifolds (sapphire blue)	1 Set/Carton
MANIFBZZNE07RA	Micro-Filter Plate Vacuum Manifolds (rose red)	1 Set/Carton
MANIFBZZNE07BA	Micro-Filter Plate Vacuum Manifolds (sapphire blue)	1 Set/Carton

Vacuum Pump

GVS Vacuum Pumps are designed to work with vacuum manifolds. Utilizing diaphragm vacuum technology without oil to eliminate contamination of media that occurs in rotary vane pumps.



Adjustable

Parameters

Oil-Free Vacuum Pump	Adjustable
Model	SPEPUMPB02EA
Ultimate Pressure	0.02~0.08
Max. Flow	5~30 L/min
Power	90 W
Power Supply	A.C. 220 V, 50/60 Hz
Weight	3.8 Kg

Ordering information

Product Code	Description	Qty.
SPEPUMPB02EA	Adjustable Oil-Free Vacuum Pump, adjustable pressure: 0.02~0.08, waste collection bottle included	1 Set/Carton

Labware

Product collection



CelluNova

Cell Culture Units

Multi-layers Cell Factory

Multi-layers cell factory is the adherent cells' ideal choice for industrial mass production, laboratory operations, and large-scale cell cultures. Compared with other brands, GVS cell factory has good performance in culture.

APolystyrene (PS) material meet USP VI medical grade. Combined with heat treatment process of injection molding, the toughness product is not easy to be damaged while transferring.

AMeanwhile, the product has undergone a three-level sealing test before delivery to ensure airtightness.

AThe production processes in Class-C workshop to comply with ISO13485 by using professional automatic production line.

AWith the perfect quality management system, each batch of products has been tested to ensure the consistency and stability of product performance between different batches.



Multi-layers Cell Factory

A Double wild-mouth design improves the speed of filling and harvesting liquid, with hardly bubbles, Also conducive for gas exchange and high-density cell culture.

A Equipped with quick-fit seal cap (patented product), it can switch between airtight and breathable state in conventional environment (greenhouse) to meet the needs of dissolved oxygen and exhaust in different culture stages of cells and viruses.

A The cell-factory is equipped with a complete set of sealed pipeline system, which can be connected with the liquid inlet and receiving system pipeline, and the liquid input and output are carried out by peristaltic pumps or pressure systems.

Ordering information

TC treated seal cap							
Product Code	Layer	Culture area (cm ²)	Length (mm)	Width (mm)	Height (mm)	pcs/pack	pcs/case
CELCUFG010001S	1	635	335	205.5	48	1	8
CELCUFG010002S	2	1270	335	205.5	65	1	8
CELCUFG010005S	5	3175	335	205.5	116	1	6
CELCUFG010010S	10	6350	335	205.5	201	1	4
CELCUFG010040S	40	25400	335	205.5	711	1	2

TC treated vent cap							
Product Code	Layer	Culture area (cm ²)	Length (mm)	Width (mm)	Height (mm)	pcs/pack	pcs/case
CELCUFG011001S	1	635	335	205.5	48	1	8
CELCUFG011002S	2	1270	335	205.5	65	1	8
CELCUFG011005S	5	3175	335	205.5	116	1	6
CELCUFG011010S	10	6350	335	205.5	201	1	4
CELCUFG011040S	40	25400	335	205.5	711	1	2

Non-TC treated seal cap							
Product Code	Layer	Culture area (cm ²)	Length (mm)	Width (mm)	Height (mm)	pcs/pack	pcs/case
CELCUFG012001S	1	-	335	205.5	48	1	8
CELCUFG012002S	2	-	335	205.5	65	1	8
CELCUFG012005S	5	-	335	205.5	116	1	6
CELCUFG012010S	10	-	335	205.5	201	1	4
CELCUFG012040S	40	-	335	205.5	711	1	2

Non-TC treated Vent cap							
Product Code	Layer	Culture area (cm ²)	Length (mm)	Width (mm)	Height (mm)	pcs/pack	pcs/case
CELCUFG013001S	1	-	335	205.5	48	1	8
CELCUFG013002S	2	-	335	205.5	65	1	8
CELCUFG013005S	5	-	335	205.5	116	1	6
CELCUFG013010S	10	-	335	205.5	201	1	4
CELCUFG013040S	40	-	335	205.5	711	1	2

Accessories of Cell Factory



Product Code	CELCUFGA0C1003S	CELCUFGA0C2004S	CELCUFGA0C0005S	CELCUFGA0C0006S
Name	Seal cap	Vent cap	Liquid transfer cap	Small mouth transfer cap
Material	pp	pp	pp	pp
Irradiation	Yes	Yes	Yes	Yes
Package	1 pcs/pack	1 pcs/pack	2 pcs/pack	2 pcs/pack



Product Code	CELCUFGA0C2007S	CELCUFGA0C2004S	CELCUFGA0C0005S	CELCUFGA0C0006S
Name	Plug	Big mouth airtransfer cap kit	Large mouth liquid transfer kit	Big mouth tee kit
Irradiation	Yes			
Package	2 pcs/pack	1 set/pack	1 set/pack	1 set/pack



Product Code	CELCUFGA010060S	CELCUFGA010120S	CELCUFGA010140S
Name	Small mouth air transfer cap kit	Small mouth liquid transfer cap kit	Small mouth tee kit
Package	2 pcs/pack	1 set/pack	1 set/pack



Roller Bottle

Roller Bottle is a kind of disposable container which can meet the requirements of large-scale production of cells and tissues in both experimental and industrial production, and is widely used in the culture of animal and plant cells, bacteria, viruses and so on.

Material: polystyrene (PS) ,which meet USP VI medical grade.

A Vacuum plasma surface treatment technology, enhance cell adhesion ability, can also be coated with collagen on the inner surface according to customer requirements.

A cGMP standard production, each batch passes the performance test, perfect quality system from the source to ensure product quality and consistency.

A Sterile, no endotoxin, no heat source, no cytotoxicity.

A Injection, pull and blow molding process, the product bottle mouth is smooth and round, the contact sealing with the cap is better, and the product residue is less.

A 5L cell bottle adopts two-stage design to increase the contact area. The contact area between the roller bottle and the rotating bottle machine adopts the frosted structure to increase the friction coefficient of the roller bottle and reduce the sliding phenomenon.



Ordering information

TC treated						
Product Code	Size	Culture area (ml)	Cap	Sterile	pcs/pack	pcs/case
CELCUFG023002S	2 (roller bottle-Rib type)	1700	Seal cap	Yes	2	40
CELCUFG022002S	2	850	Seal cap	Yes	2	40
CELCUFG022005S	5	1750	Seal cap	Yes	1	20

Non-TC treated						
Product Code	Size	Culture area (ml)	Cap	Sterile	pcs/pack	pcs/case
CELCUFG020002S	2	25%	Seal cap	Yes	2	40
CELCUFG020005S	5	25%	Seal cap	Yes	1	20

High Efficiency Erlenmeyer Flask



Material: USPVI PETG material or Bisphenol A-free PC material.

Specification: 3L, 5L.

Applications: Widely used in microbiology, cell biology and other fields, can be used with large capacity culture shaker, mainly suitable for suspension cell culture.



Features

AAdopts imported injection, pull and blow molding process.

AAccording to cGMP standard production, no direct contact, product consistency is good.

AThe breathable film area of shaker cap is larger than that of similar products, increasing the breathable capacity, suitable for high-density cell culture, the working volume can be filled to 60%-80% of the total volume, and the cell yield is higher.

AThe bottle neck designed with a natural arc, and the handle is designed in accordance with the ergonomic design,

which is convenient to take the bottle and transfer the liquid.

AEquipped with 0.2 μ m barrier breathable membrane, optional liquid transfer cap, or customized bottle cap suitable for liquid transfer according to customer process requirements.

AThe product has passed sterility testing, endotoxin testing, DNase free, RNase free.

Ordering information

PC vent cap products						
Product Code	Spec	Height (mm)	Neck diameter (mm)	Bottom diameter (mm)	Working Volume (L)	pcs/case
CELCUFG043003S	3 L	245	70	163	1.12L-1.96L	12
CELCUFG043005S	5 L	281	90	230.26	2L-3.5L	4

Accessories of High Efficiency E-Flask



Ordering Information of Efficient Transfer Cap

Product Code	Description	Min package	pcs/case
CELCUFGA010370S	Transfer cap (Silicone tube, needleless sampler)	1 set/pack	10
CELCUFGA010390S	Transfer cap (Silicone tube, needle sampler)	1 set/pack	10
CELCUFGA010410S	Transfer cap (Silicone tube, no sampling pipeline)	1 set/pack	10
CELCUFGA010430S	Transfer cap (Hot melt tube, needleless sampler)	1 set/pack	10
CELCUFGA010450S	Transfer cap (Hot melt tube, needle sampler)	1 set/pack	10
CELCUFGA010470S	Transfer cap (Hot melt tube, no sampling pipeline)	1 set/pack	10

Ordering Information of Bi-Directional Transfer Cap

Product Code	Description	Min package	pcs/case
CELCUFGA010490S	Two-way transfer cap (Silicone tube)	1 pcs/pack	10
CELCUFGA010510S	Two-way transfer cap (Hot melt tube)	1 pcs/pack	10

Ordering Information of Inverted Transfer Cap

Product Code	Description	Min package	pcs/case
CELCUFGA010530S	Inverted transfer cap (Silicone tube)	1pcs/pack	10
CELCUFGA010550S	Inverted transfer cap (Hot melt tube)	1pcs/pack	10



Conical Erlenmeyer Flask



Material: USP VI PETG material or Bisphenol A-free PC material.

Specification: 125ml, 250ml, 500ml, 1000ml

Application: It is suitable for cell lines with high oxygen requirements. It is an economical cell culture tool that can be used to cultivate bacteria, fungi, animal and plant cells in suspension culture media, and can also be used for the preparation, mixing and storage of medium.

Features

- A According to c-GMP standard production, no personal contact, great consistency.
- A The bottle cap using high-strength HDPE material and is designed with a PTFE hydrophobic and breathable membrane. After contact with liquid, it will not affect the sealing and ventilation effect of the breathable membrane.
- A The scale is clear and accurate, which is convenient for observing the medium capacity.
- A Aseptic packaging.

Ordering information

PETG flask with vent cap						
Product Code	Spec	Height (mm)	Neck diameter (mm)	Bottom diameter (mm)	Working Volume (L)	pcs/case
CELCUFG031125S	125 ml	115.8	29.4	66	30	24
CELCUFG031250S	250 ml	140.8	39	83	60	12
CELCUFG031500S	500 ml	178.8	39	101	125	12
CELCUFG031001S	1000 ml	216.8	39	127	500	12

PETG flask with seal cap						
Product Code	Spec	Height (mm)	Neck diameter (mm)	Bottom diameter (mm)	Working Volume (L)	pcs/case
CELCUFG030125S	125 ml	115.8	29.4	66	30	24
CELCUFG030250S	250 ml	140.8	39	83	60	12
CELCUFG030500S	500 ml	178.8	39	101	125	12
CELCUFG030001S	1000 ml	216.8	39	127	500	12

PC flask with vent cap						
Product Code	Spec	Height (mm)	Neck diameter (mm)	Bottom diameter (mm)	Working Volume (L)	pcs/case
CELCUFG033125S	125 ml	115.8	29.4	66	30	24
CELCUFG033250S	250 ml	140.8	39	83	60	12
CELCUFG033500S	500 ml	178.8	39	101	125	12
CELCUFG033001S	1000 ml	216.8	39	127	500	12

PC flask with seal cap						
Product Code	Spec	Height (mm)	Neck diameter (mm)	Bottom diameter (mm)	Working Volume (L)	pcs/case
CELCUFG032125S	125 ml	115.8	29.4	66	30	24
CELCUFG032250S	250 ml	140.8	39	83	60	12
CELCUFG032500S	500 ml	178.8	39	101	125	12
CELCUFG032001S	1000 ml	216.8	39	127	500	12

Closed Sampling System

- A Equipped with hot melt tube or silicone tube.
- A Equipped with MPC fitting or Luer fitting.
- A A broad range of tubes brands can be chosen, length and diameter can be customized.
- A Liquid transfer tube IN 1/4", OD 7/16



Bottle with Two Ports Tubing

Product Code	Volume	pcs/pack	pcs/case	Sterile	Material
CELCUFG036250S	250	1	12	Irradiation sterilization	PC
CELCUFG036500S	500	1	12	Irradiation sterilization	PC
CELCUFG036001S	1000	1	12	Irradiation sterilization	PC



Bottle with Three Ports Tubing

Product Code	Volume	pcs/pack	pcs/case	Sterile	Material
CELCUFG037250S	250	1	12	Irradiation sterilization	PC
CELCUFG037500S	500	1	12	Irradiation sterilization	PC
CELCUFG037001S	1000	1	12	Irradiation sterilization	PC

Baffled Erlenmeyer Flask



Material: PC, comply with USP VI standard.

Specification: 125 ml, 250 ml, 500 ml, 1000 ml.

Application: Designed with baffles to increase fluid shear stress, reduce viscosity from cell-free DNA and cell debris. Provide effective agitation for more efficient aeration to increased oxygenation and mixing.

Features

- According to c-GMP standard production, no personal contact, great consistency.
- The bottle cap using high-strength HDPE material and is designed with a PTFE hydrophobic and breathable membrane. After contact with liquid, it will not affect the sealing and ventilation effect of the breathable membrane.
- The scale is clear and accurate, which is convenient for observing the medium capacity.
- Aseptic packaging.



Ordering information

PC Flask with Seal Cap							
Product Code	Spec	Height (mm)	Neck diameter (mm)	Bottom diameter (mm)	Working Volume (L)	pcs/pack	pcs/case
CELCUFG034125S	125 ml	115.8	29.4	66	30	1	24
CELCUFG034250S	250 ml	140.8	39	83	60	1	12
CELCUFG034500S	500 ml	178.8	39	101	125	1	12
CELCUFG034001S	1000 ml	216.8	39	127	500	1	12

PC Flask with Vent Cap							
Product Code	Spec	Height (mm)	Neck diameter (mm)	Bottom diameter (mm)	Working Volume (L)	pcs/pack	pcs/case
CELCUFG035125S	125 ml	115.8	29.4	66	30	1	24
CELCUFG035250S	250 ml	140.8	39	83	60	1	12
CELCUFG035500S	500 ml	178.8	39	101	125	1	12
CELCUFG035001S	1000 ml	216.8	39	127	500	1	12

Cell Culture Flask



According to different surface treatment processes, cell culture flasks can be divided into hydrophilic cell culture flask and hydrophobic cell culture flask.

Under the same environment, the clone formation rate and growth generation of cells cultured in the cell culture flasks have reached the index of similar international products.

High quality polystyrene (PS) materials, USP VI medical grade.

Plasma surface treatment can maximize adhesion of cells. Culturing for 48h, Vero cell growing condition is good as international famous culture flask.

Innovative angled neck design provides good pipet and cell scraper access.

The whole production is in the C-class purification workshop. According to ISO13485 quality system

management and the use of automatic equipment production, no direct contact with personnel, good product consistency, and small differences between batches.

Sterile, DNase-free, RNase-free, endotoxin content < 0.1 EU/ml.

According to different culture requirements, there are vent cap and seal cap optional.

Upgrade the flask angle and bottom arc design to easily obtain a complete growth surface and make subsequent operations easier.



Cell Culture Flask

Ordering information

TC Treated Flask with Seal Cap					
Product Code	Size	Culture area (cm ²)	Cap Type	pcs/pack	pcs/case
CELCUFG006025S	25 cm ²	25	Seal cap	10	200
CELCUFG006075S	75 cm ²	75	Seal cap	5	100
CELCUFG006175S	175 cm ²	175	Seal cap	5	40
CELCUFG006225S	225 cm ²	225	Seal cap	5	25

TC Treated Flask with Vent Cap					
Product Code	Size	Culture area (cm ²)	Cap Type	pcs/pack	pcs/case
CELCUFG004025S	25 cm ²	25	Vent cap	10	200
CELCUFG004075S	75 cm ²	75	Vent cap	5	100
CELCUFG004175S	175 cm ²	175	Vent cap	5	40
CELCUFG004225S	225 cm ²	225	Vent cap	5	25

Non-TC Treated Flask with Seal Cap					
Product Code	Size	Culture area (cm ²)	Cap Type	pcs/pack	pcs/case
CELCUFG007025S	25 cm ²	-	Seal cap	10	200
CELCUFG007075S	75 cm ²	-	Seal cap	5	100
CELCUFG007175S	175 cm ²	-	Seal cap	5	40
CELCUFG007225S	225 cm ²	-	Seal cap	5	25

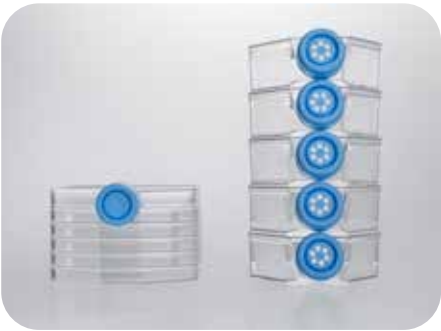
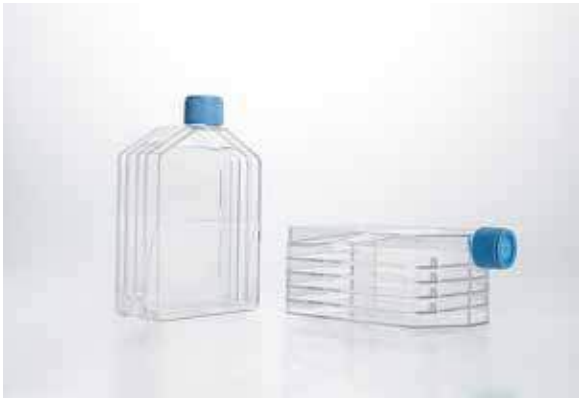
Non-TC Treated Flask with Vent Cap					
Product Code	Size	Culture area (cm ²)	Cap Type	pcs/pack	pcs/case
CELCUFG005025S	25 cm ²	-	Vent cap	10	200
CELCUFG005075S	75 cm ²	-	Vent cap	5	100
CELCUFG005175S	175 cm ²	-	Vent cap	5	40
CELCUFG005225S	225 cm ²	-	Vent cap	5	25



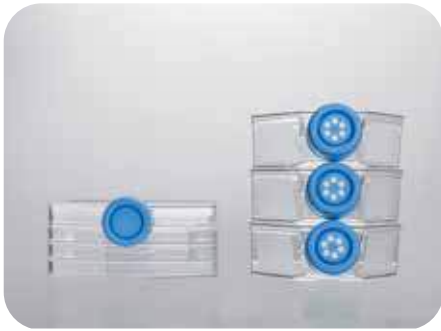
Multi-layer Cell Culture Flasks

Multi-layer cell culture flasks 3-layers and 5-layers are available, which providing 525 cm² and 875 cm² cell growth surface area respectively, they are equivalent to 3 and 5 times the surface area of the T-175 culture flask. The higher-capacity design make cell culture faster, easier, and more efficient.

- ACap Type: Plug Seal Vent
- ASurface: TC treated
- AFlask Body: Polystyrene (PS)
- AFlask Cap: High-density Polyethylene (HDPE)
- AFilter Membrane: Polytetrafluoroethylene (PTFE)
- AConforming to USP Class VI standards



Five-layer flasks comparison



Three-layer flasks comparison



Vent Cap



Plug Seal Cap

Feature

- AThe medium can be evenly distributed across each layer, providing a consistent culture environment for uniform cell growth
- AThe surface treatment of each layer is uniform and stable, effectively guaranteeing large-scale cell cultures
- ACells and reagents can be mixed directly in the flask, with no leakage or splash between layers, saving time and reducing the risk of contamination
- ASuitable for 10mL serological pipets to liquid aspiration/replenishment or cells harvesting directly in the flask
- AEvery flask is printed lot No. for quality traceability
- Asterilized by irradiation, SAL 10⁻⁶
- ADNase/RNase free, Non-pyrogenic, Non-cytotoxic

Ordering information

Product Number	Layer	Surface	Cell Growth Area(cm ²)	Type of Cap	Sterile	Qty Per Bag/Case
CELCUJGTCF011525S	3	TC treated	525	Plug Seal	Y	2/12
CELCUJGTCF012525S	3		525	Vent	Y	2/12
CELCUJGTCF011875S	5		875	Plug Seal	Y	1/8
CELCUJGTCF012875S	5		875	Vent	Y	1/8

Cell and Tissue Culture Products

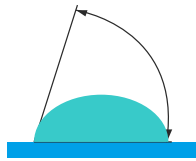
GVS superhydrophilic cell culture product series is created by introducing polar groups onto their surfaces. This forms a durable and stable superhydrophilic surface that facilitates good adherent growth of various types of cells under different culture conditions, thereby improving cell yield. The treated surface also eliminates the need for unstable, time-consuming, and costly biological coating.

- Cell and Tissue Culture Flasks: T12.5 T25 T75 T182 T225 T300
- Cap Style: Plug Seal Vent
- Cell and Tissue Culture Plates: 6-well 12-well 24-well 48-well 96-well
- Cell and Tissue Culture Dishes: 35 mm 60 mm 70 mm 90 mm 100 mm 150 mm
- Materials: Flask/Plate/Dish Body: Polystyrene (PS), Flask Cap: High-density Polyethylene (HDPE), Filter Membrane: Polytetrafluoroethylene (PTFE), conforming to USP Class VI standards

Feature

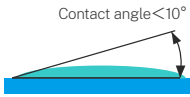
- Unique superhydrophilic surface treatment technology provides better adherence for cells, promoting rapid cell growth and increasing yields.
- This ensures continuous and uniform cell adherence, and can be used for adherent cultures of primary cells, neuronal cells, stem cells and other fastidious cells that have more stringent requirements for the hydrophilicity of the culture surface.
- Cells can adapt quickly to a serum-free or low-serum culture environment, meeting the needs of experiments that require the elimination of interference by serum components or that require reduced serum levels, thus reducing the cost of cell culture.

Water droplets on ordinary surfaces are relatively full



Super hydrophilic

Contact angle <60°



Ordering information of Tissue Culture Flasks

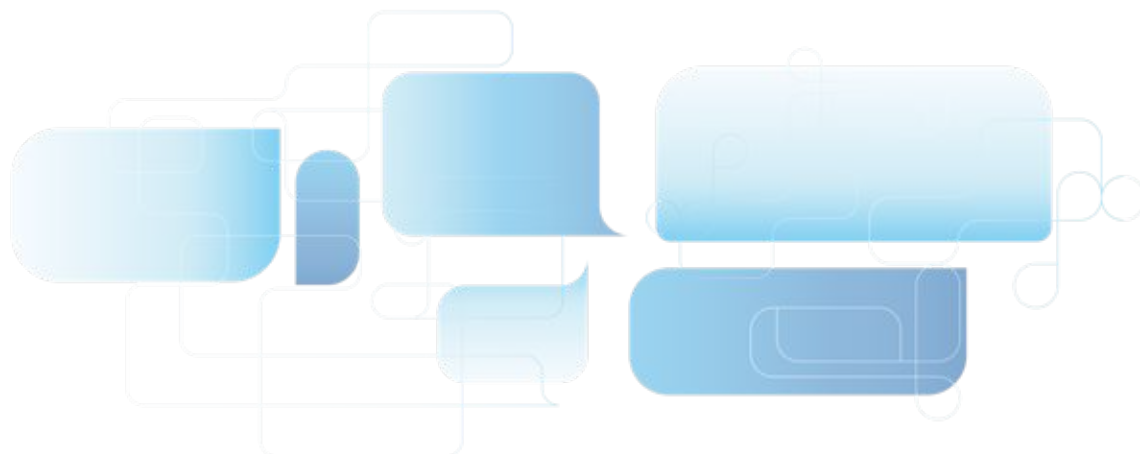
Product Number	Volume(mL)	Surface Type	Working Volume(mL)	Cap Style	Sterile	Qty. Per Pack	Qty. Per Case
CELCUJGF011025A	25	Surface Treated	12.5	Plug Seal	Y	10	200
CELCUJGF012025A	25		12.5	Vent	Y	10	200
CELCUJGF011050A	50		25	Plug Seal	Y	10	200
CELCUJGF012050A	50		25	Vent	Y	10	200
CELCUJGF011250A	250		75	Plug Seal	Y	5	100
CELCUJGF012250A	250		75	Vent	Y	5	100
CELCUJGF011600A	600		182	Plug Seal	Y	5	40
CELCUJGF012600A	600		182	Vent	Y	5	40
CELCUJGF111600A	600		182	Plug Seal	Y	5	40
CELCUJGF112600A	600		182	Vent	Y	5	40
CELCUJGF011850A	850		300	Plug Seal	Y	3	18
CELCUJGF012850A	850		300	Vent	Y	3	18

Ordering information of Tissue Culture Plates

Product Number	Well Qty	Surface Type	Cell Growth Area(cm ²)	Qty. Per Box	Qty. Per Case
CELCUJGP011006A	6	Surface Treated	9.6	1	100
CELCUJGP011012A	12		3.85	1	100
CELCUJGP011024A	24		1.93	1	100
CELCUJGP011048A	48		0.84	1	100
CELCUJGP011096A	96		0.33	1	100
CELCUJGP012096A	96U		0.58	1	100

Ordering information of Cell and Tissue Culture Dishes

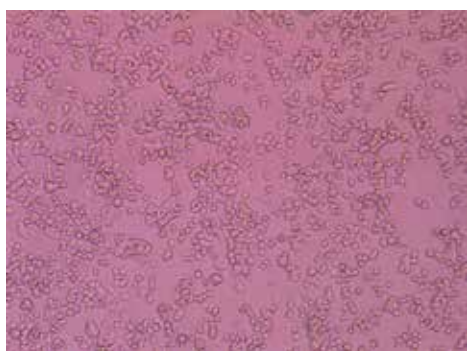
Product Number	Diameter(mm)	Surface Type	Cell Growth Area(cm ²)	Sterile	Qty. Per Box	Qty. Per Case
CELCUJGD010035A	35	Surface Treated	8.5	Y	10	240
CELCUJGD010060A	60		21.2	Y	10	240
CELCUJGD010070A	70		36.3	Y	10	240
CELCUJGD010090A	90		55	Y	10	240
CELCUJGD010100A	100		60.8	Y	10	240
CELCUJGD010150A	150		143	Y	5	80



Poly-D-Lysine-coated Products

Poly-D-Lysine serves as a positively charged extracellular matrix, fostering nonspecific cell attachment. Upon application to solid-phase culture surfaces, it heightens the electrostatic interaction between negatively charged ions on the cell membrane surface and positively charged ions on the culture surface. This enhancement bolsters cell attachment rates in serum-free or low-serum culture settings and reinforces the absorption of serum proteins and extracellular matrix proteins onto the culture surface.

GVS Poly-D-Lysine-coated Products are available in a variety of forms, including culture plates and dishes. The product surface is pre-coated with Poly-D-lysine, which facilitates the attachment growth, proliferation and differentiation of cells that are difficult to culture, such as neurons, glial cells and transfected cell lines.



Inoculate PC-12 cells onto a poly-D-lysine-coated 24-well cell culture plate at a density of 5×10^5 cells/well. After 24 hours, observe under a microscope: The cell morphology appears normal, exhibiting an attachment rate surpassing 90% and the viability of attachment cells exceeding 95%.

Specification:

A Poly-D-Lysine-coated culture plates (6-well, 12-well and 24-well)

A Poly-D-Lysine-coated culture dishes (35 mm, 60 mm and 90 mm)

Features

A Utilizing premium poly-D-lysine characterized by a molecular weight ranging from 75 to 150 kDa, boasting high viscosity and robust cell attachment properties

A Enhance the attachment, growth, and specialization of challenging cell types, such as neurons, in culture

A Synthetic poly-D-lysine aims to prevent the stimulation of biological activity resulting from the introduction of natural polymers, impurity proteins, and similar factors

A Following validation through diverse cell culture tests, the attachment rate of cells surpasses 90%, with the viability of attachment cells exceeding 95%

A We offer a range of pre-coated poly-D-lysine product forms ready for use, catering to diverse testing requirements of our customers

A Lot number of each package bag is printed to ensure quality traceability

A Sterilized by irradiation, SAL10-6, DNase/RNase-free, and non-pyrogenic

Ordering information

Product Number	Product Name	Specification	Surface	Sterile	Qty./Bag	Qty./Case
CELCUJGP040006A	Culture plate	6-well	Poly-D-lysine Coated	Y	1	60
CELCUJGP040012A	Culture plate	12-well	Poly-D-lysine Coated	Y	1	60
CELCUJGP040024A	Culture plate	24-well	Poly-D-lysine Coated	Y	1	60
CELCUJGD040035A	Culture dish	35mm	Poly-D-lysine Coated	Y	5	80
CELCUJGD040060A	Culture dish	60mm	Poly-D-lysine Coated	Y	5	80
CELCUJGD040090A	Culture dish	90mm	Poly-D-lysine Coated	Y	5	80

Ultra-low Adsorption Surface

Enable cell spheroid culture in a rapid, consistent, and highly reproducible manner

Compared with the traditional two-dimensional (2D) culture model, the three-dimensional (3D) spheroid model can better simulate the three-dimensional cell networks, cell-matrix, and cell-cell interactions. Therefore, the 3D spheroid model is of great significance for drug screening, in vitro tumor research, and the exploration of stem cell differentiation and sorting.

Ultra-low Adsorption Surface of GVS is designed for spheroids (e.g. 3D tumor spheroid) and organoid cultures, providing a variety of product forms such as culture plates, culture dishes, and culture flasks. After the surface of the product is subjected to special gel treatment, the product has extremely strong anti-protein adsorption and anti-cell attachment, and there is almost no cell attachment on the surface, which is conducive to the suspension growth of cells and enables cell spheroid culture in a rapid, consistent, and reproducible manner.



Specification: Ultra-low adsorption cell and tissue culture plates (6 wells; 96 wells, flat bottom; 96 wells, U bottom)

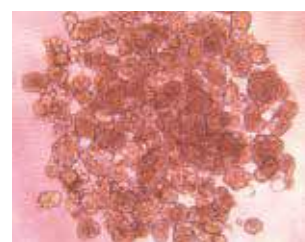
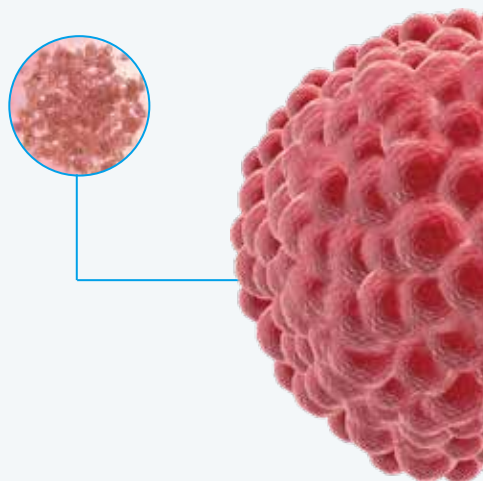
Ultra-low adsorption culture dishes (60 mm; 100 mm)

Ultra-low adsorption culture flask T75

Material: Polystyrene (PS), Flask cap: High-density polyethylene (HDPE), conforming to USP Class VI standards

Features

- A**The Ultra-low Adsorption Surface has a covalently bonded hydrogel layer with extremely strong anti-protein adsorption and anti-cell attachment, which can effectively inhibit cell attachment and minimize protein adsorption, enzyme activation, and cell activation
- A**The surface is non-cytotoxic, biologically inert and non-degradable
- A**The coating on the surface is firm and convenient for daily experimental operation
- A**It has been verified by different cell culture tests that there is almost no cell attachment on the surface and enables cell spheroid culture in a rapid, reproducible, consistent, and reliable manner
- A**Provide a variety of Ultra-low Adsorption Surface to meet different experimental needs of customers
- A**Each package bag is printed with lot No. for quality traceability
- A**Sterilized by irradiation, SAL 10^{-6} , DNase/RNase-free, non-pyrogenic, and non-cytotoxic



Cell Growth Status of MCF-7 Cells on Day 6 of untreated surface product (Left) and GVS Ultra-low Adsorption Surface (Right)

Application

- A**Construction of 3D Tumor Spheroids and Embryoid Bodies
- A**Formation of Neurospheres
- A**Screening of Suspended Cells

- A**Studies on Stem Cells
- A**Studies on Cancer Cell
- A**.....

Cell culture tests of different surface products GVS has better cell spheroid-forming performance

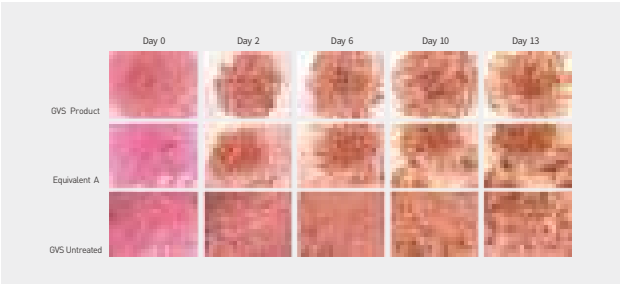


Figure1:Sphere-formation Assay

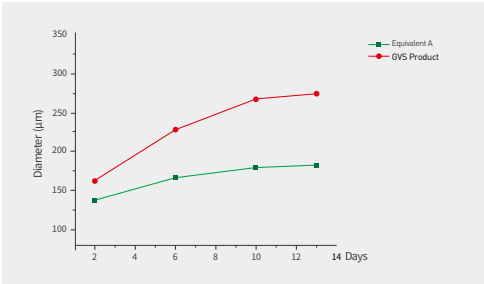


Figure 2: Cell Diameter Measurement
after Spheroid-forming Culture

Figure 1: MCF-7 cells were seeded in U-bottom 96-well culture plates of different products at a seeding density of 5000 cells/well, and the growth status of the cells was observed regularly.

Figure 2: After the 13th day of cell culture, each well of each plate was photographed using a fluorescence microscope, and the length of the spheroid diameter was measured.

The results showed that compared with the similar imported products, the growth status of cells cultured on the surface of GVS was significantly better and the spheroid size was also larger when the cell culture time was not more than 13 days.



Ordering information

Product Number	Product Name	Specifcation	Surface Type	Sterile	Qty. Per Bag/Case
CELCUJGP030006A	Culture plate	6-well	Ultra-low adsorption	Y	1/60
CELCUJGP030096A	Culture plate	96-well (flat bottom)	Ultra-low adsorption	Y	1/60
CELCUJGP130096A	Culture plate	96-well (U bottom)	Ultra-low adsorption	Y	1/60
CELCUJGD030060A	Culture dish	60 mm	Ultra-low adsorption	Y	5/80
CELCUJGD030100A	Culture dish	100mm	Ultra-low adsorption	Y	5/80
CELCUJGF030250A	Culture flask	T75 (250 mL, vent)	Ultra-low adsorption	Y	1/60



Mixing culture flask for biological culture



Features

- With magnetic coupling, suitable for culture in suspension cells or microcarriers
- Height adjustable blade and aseptic design, the mixing part is all in the flask
- Wide Mouth design facilitates gas exchange
- The borosilicate glass meets the USP I and ASTM E 438I standards, Class A requirements
- Autoclavable

Product code	Vlolume(ml)	Dia. x Height (mm)	Center neck	Side neck	MPQ
CELCUWG3023125A	125	65 x 155	51-400	33-430	1 pc
CELCUWG3023250A	250	85 x 175	51-400	33-430	1 pc
CELCUWG3023500A	500	110 x 190	100-400	45mm	1 pc
CELCUWG3023103A	1000	130 x 250	100-400	45mm	1 pc
CELCUWG3023303A	3000	178 x 341	100-400	45mm	1 pc



Mixing culture flask for Microcarrier



Features

- With simple and flexible coupling, suitable for culture in microcarriers
- Thanks to glass ball, it provides a very gentle mixing effect, reduces shear stress and protects cells
- Wide Mouth design facilitates gas exchange
- The borosilicate glass meets the USP I and ASTM E 438I standards, Class A requirements
- Autoclavable

Product code	Vlume(ml)	Dia. x Height (mm)	Center neck	Side neck	MPQ
CELCUWG3023225A	125	65 x 155	51-400	33-430	1 pc
CELCUWG3023350A	250	85 x 175	51-400	33-430	1 pc
CELCUWG3023600A	500	110 x 190	100-400	45mm	1 pc
CELCUWG3023203A	1000	130 x 250	100-400	45mm	1 pc
CELCUWG3023403A	3000	178 x 341	100-400	45mm	1 pc

Accessories and spare parts

Stirring kit with PTFE paddle blades



Product code	Description	Suitable for
CELCUWG3023126A	Lid for 125ml Glass culture flask, glass shaft, magnetic coupling and magnetic paddle blades	125ml Glass culture flask
CELCUWG3023251A	Lid for 250ml Glass culture flask, glass shaft, magnetic coupling and magnetic paddle blades	250ml Glass culture flask
CELCUWG3023501A	Lid for 500ml Glass culture flask, glass shaft, magnetic coupling and magnetic paddle blades	500ml Glass culture flask
CELCUWG3023104A	Lid for 1000ml Glass culture flask, glass shaft, magnetic coupling and magnetic paddle blades	1000ml Glass culture flask
CELCUWG3023304A	Lid for 3000ml Glass culture flask, glass shaft, magnetic coupling and magnetic paddle blades	3000ml Glass culture flask

Stirring kit with glass ball impeller



Product code	Description	Suitable for
CELCUWG3023226A	Lid for 125ml Glass culture flask, glass ball impeller and connecting tube	125ml Glass culture flask
CELCUWG3023351A	Lid for 250ml Glass culture flask, glass ball impeller and connecting tube	250ml Glass culture flask
CELCUWG3023601A	Lid for 500ml Glass culture flask, glass ball impeller and connecting tube	500ml Glass culture flask
CELCUWG3023204A	Lid for 1000ml Glass culture flask, glass ball impeller and connecting tube	1000ml Glass culture flask
CELCUWG3023404A	Lid for 3000ml Glass culture flask, glass ball impeller and connecting tube	3000ml Glass culture flask



Glass culture flask



Product code	Description	Suitable for
CELCUWG3023127A	125ml glass Glass culture flask with three necks, 1pc	125ml Glass culture flask
CELCUWG3023252A	250ml glass Glass culture flask with three necks, 1pc	250ml Glass culture flask
CELCUWG3023502A	500ml glass Glass culture flask with three necks, 1pc	500ml Glass culture flask
CELCUWG3023105A	1000ml glass Glass culture flask with three necks, 1pc	1000ml Glass culture flask
CELCUWG3023305A	3000ml glass Glass culture flask with three necks, 1pc	3000ml Glass culture flask

Multi-Well Cell Culture Plates



- A High quality polystyrene (PS) raw material, conforming to USP VI medical grade, excellent optical and chemical properties to ensure product stability and easy microscopic observation.
- A Vacuum plasma surface treatment and uniform well to ensure well consistency.

- A Cellular biocompatible (ISO:10993), sterile and endotoxin free.
- A The lid well design ensure the gas exchange, reduce the risks of cross-contamination and evaporation.
- A Alphanumeric marked wells, easy for identification.

Ordering information

Product Code	Spec	Single Well Surface Area (cm ²)	Recommended Operating Volume (ml/well)	pcs/case	Treat Method	Packing
CELCUFG060006S	6 wells	9.5	1.900-2.900	50	TC	Box
CELCUFG060012S	12 wells	3.8	0.760-1.140	50	TC	Box
CELCUFG060024S	24 wells	1.9	0.380-0.570	50	TC	Box
CELCUFG060048S	48 wells	0.95	0.190-0.285	50	TC	Box
CELCUFG060096S	96 wells	0.32	0.100-0.200	50	TC	Box
CELCUFG061006S	6 wells	9.5	1.900-2.900	50	Non-TC	Box
CELCUFG061012S	12 wells	3.8	0.760-1.140	50	Non-TC	Box
CELCUFG061024S	24 wells	1.9	0.380-0.570	50	Non-TC	Box
CELCUFG061048S	48 wells	0.95	0.190-0.285	50	Non-TC	Box
CELCUFG061096S	96 wells	0.32	0.100-0.200	50	Non-TC	Box

Cell Culture Dish

Cell culture dishes are made from polystyrene (PS) materials and are suitable for laboratory inoculation, marking, weighing, separation and treatment of tissue or cells.



Features

- A Uniform thickness, no distortion for excellent observation.
- A Easy to grip with gear ring design, reduce contamination risk.
- A The ring protrusion on the cover is closely combined with the bottom to facilitate storage and reduce medium volatilization.
- A Open petri dish lids with regular protrusions are available.
- A Vacuum plasma surface treatment for ideal adhesive performance.
- A No pyrogen, endotoxin free, no cytotoxic.
- A Sterile by Gamma irradiation, SAL<10⁻⁶.

Ordering information

TC treatment				
Product Code	Size (mm)	Min Package	Sales package	pcs/case
CELCUFG070060S	60	10pcs/pack	50packs/case	500
CELCUFG070100S	100	10pcs/pack	30packs/case	300
CELCUFG070150S	150	5pcs/pack	20packs/case	100

TC treatment				
Product Code	Size (mm)	Min Package	Sales package	pcs/case
CELCUFG071060S	60	10pcs/pack	50packs/case	500
CELCUFG071100S	100	10pcs/pack	30packs/case	300
CELCUFG071150S	150	5pcs/pack	20packs/case	100

Glass Bottom Dishes

GVS 35mm Glass Bottom Dishes offer the flexibility to convert your culture device into an imaging device. This allows a smooth transition from cell culture to cell analysis with the same seeding density, media volume, and culture conditions. The Dishes combine the convenience of a standard 35 mm cell culture dish with the imaging benefits of cover glass to provide the optimum optical characteristics required for high-magnification microscopy and confocal image analysis.

Application and Features

- A Glass bottom thickness: 0.16-0.19mm
- A TC Treated
- A Working volume: 3ml
- A PS material, the bottom glass is made of borosilicate glass material, medical grade glue bonding
- A No cytotoxicity, no pyrogen, no endotoxin
- A Sterile

Used in confocal laser microscopy, fluorescence microscopy, phase contrast microscopy, live cell imaging, differential interference contrast, fluorescence in situ hybridization (FISH) and other cell culture observation experiments



Ordering information

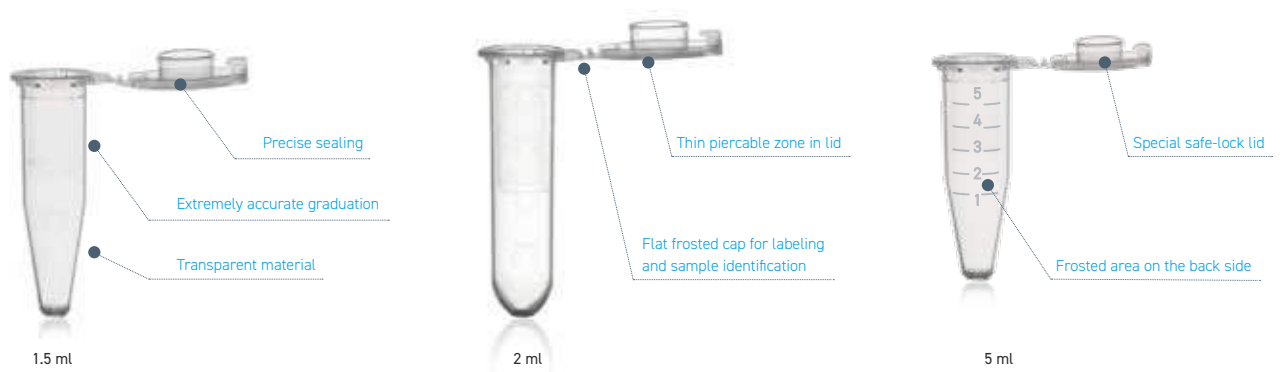
Product Code	Description
CELCUCG2314X0151A	15mm glass bottom cell culture dish, PS material dish with 0.16-0.19mm cover glass, TC treated, sterile.
CELCUCG2314X0152A	20mm glass bottom cell culture dish, PS material dish with 0.16-0.19mm cover glass, TC treated, sterile.

Micro-Centrifuge Tube With Safe-Lock Cap

Made of high quality of transparent PP material, the new special design of safe lid can be fitted tightly with the rim of tube, and avoid accidental cap opening during centrifugation and thermal stress, especially applicable for expensive or hazardous samples, etc. The thin membrane lid can be pierced, suitable for the toxic biological substances without generating aerosols.

Features

- AOpen and close conveniently with one hand; Special safe-lock cap, tight-fitting lid provides a precise and safety sealing.
- AThin membrane lid can be pierced by a syringe; Accurate molded graduation for volume estimation.
- AFlat lid and large frosted area on tube for easy sample identification.
- AWithstand centrifugation up to 15000 xg (1.5 ml & 2 ml)/25000 xg (5 ml); Guaranteed functionality between -86°C to 121°C.



Ordering Information of Inverted Transfer Cap

Product Code	Description	Packing
CELCUCG4610X1910S	1.5 ml, Neutral, conical bottom, molded graduation from 0.5-1.5 ml, sterile	500 pcs/zip-lock bag, 5,000 pcs/carton
CELCUCG4610X1911S	2.0 ml, Neutral, round bottom, molded graduation from 0.5-2.0 ml, sterile	500 pcs/zip-lock bag, 5,000 pcs/carton
CELCUCG4610X1908S	5 ml, Neutral, conical bottom, molded graduation from 1-5 ml, sterile	200 pcs/zip-lock bag, 2,000 pcs/carton



Low Binding Microcentrifuge Tubes

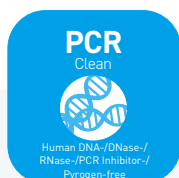
Minimal valuable samples loss

Gene therapy and vaccine production often involve various types of purification for proteins, DNA, and other substances. Since nonspecific binding to plastic containers will lead to the loss of valuable samples, the purification processes often depend on high-quality plastic products for sample processing and storage. The smaller the sample volume is, the more important it becomes to reduce the binding between the sample and the container used.

The low binding microcentrifuge tubes of GVS is optimized for protein and DNA analytics. These tubes are made using a unique high-purity polypropylene polymer material that does not require any surface coating, such as siliconization. Strict quality control is implemented in accordance with ISO9001 and ISO13485. The stable quality ensuring significantly reduces binding between samples and plastic surface, minimizing sample loss and achieving a maximum recovery rate of your precious samples and more accurate analysis results.

Material: Polypropylene (PP), conforming to USP Class VI standards

Capacity: 0.5 mL, 1.5 mL and 2.0 mL



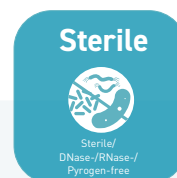
Cleanliness Test Standard for GVS PCR

GVS offers top quality consumables that have successfully passed the PCR clean test. These consumables are specifically designed for nucleic acid-related test operations, including nucleic acid extraction, purification, PCR, qPCR, and more.

The products passing PCR clean test

meet the following standards:

- √Human DNA-free √DNase/RNase-free
- √PCR inhibitor-free √Non-pyrogenic/No endotoxin



Standard for Sterility Quality Test

To minimize the influence of consumable contamination and adhere to strict analysis standards, GVS has implemented stringent sterility quality test standards. These standards encompass the production conditions, ensuring high cleanliness, as well as sterilization processes. This comprehensive approach strikes for optimal sterility levels, satisfies the most demanding analysis requirements.

The products passing sterility quality test

meet the following standards:

- √Sterile √Human DNA-free √DNase/RNase-free
- √PCR inhibitor-free √Non-pyrogenic/No endotoxin

Quality Assurance

The sterility level meets the requirements of ISO11137, SAL < 10⁻⁶; pyrogen/endotoxin < 0.03 EU/mL; Human DNA < 0.03 pg/μL; DNase < 1×10⁻⁶ Kunitz units; RNase < 1×10⁻⁹ Kunitz units; PCR inhibitor ≤ 2 cycle offsets.

Applications

Preparation and storage of proteins, peptides, or antibodies

Storage of virus to prevent viral titer reduction

Storage of cell suspension

Enzyme catalysis test

DNA and RNA sample preparation and storage

Features

1. Selected special raw materials

A Made of special high-purity polypropylene (PP) polymer with stable product performance

A High-transparency PP tube body for easy capacity and scale observation

A Working temperature range: -80°C~121°C (no deformation after autoclaving with open lid)

2. Excellent low protein/low nucleic acid binding

A Special materials can effectively reduce the nonspecific binding of protein/nucleic acid to the tube surface.

A No surface coating (e.g., silicification) on the tube wall can reduce sample binding and interference to samples.

A Samples of different proteins and nucleic acids can be ensured to the maximum recovery, with a recovery

A rate over 90%.

3. Ingenious design

A Lid lock prevents accidental opening of cap and evaporation of samples during long-term storage, and ensures operating safety.

A Smooth and transparent tube body with clear graduation, designed with a frosted writing area, makes it convenient for recording.

A Resealable bag packing (50 per bag) to reduce the risk of contamination.

4. Rigorous performance test

A The product has been tested for 18 items, including tightness, folding resistance of flipped cap, centrifugal force, solvent resistance, extractable and accelerated aging, which shows stable performance.

A The maximum centrifugal force for 1.5 mL, 2 mL is RCF 25,000 xg; the maximum centrifugal force for 0.5 mL is RCF 30,000 xg.

A Available in sterilized or non-sterilized, sterilized by irradiation, SAL 10⁻⁶

A DNase/RNase-free, Non-pyrogenic, human DNA-free, PCR inhibitor-free

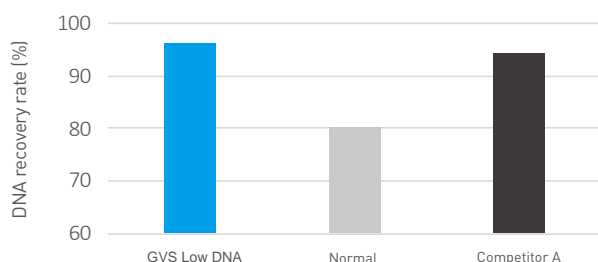


Note:

1. This product is not recommended for long-term sample storage for samples containing benzene, benzyl alcohol, or chloroform solvents.
2. Re-autoclaving of sterilized low binding microcentrifuge tubes may result in yellowing of the materials but does not affect the usage for the products.
3. The package can be removed and opened for autoclaving sterilization for one time. Repeated autoclaving sterilization is not recommended.

Comparison Test Results of Typical Nucleic Acid Recovery

Low DNA Microcentrifuge Tube - Minimal nucleic acid samples loss

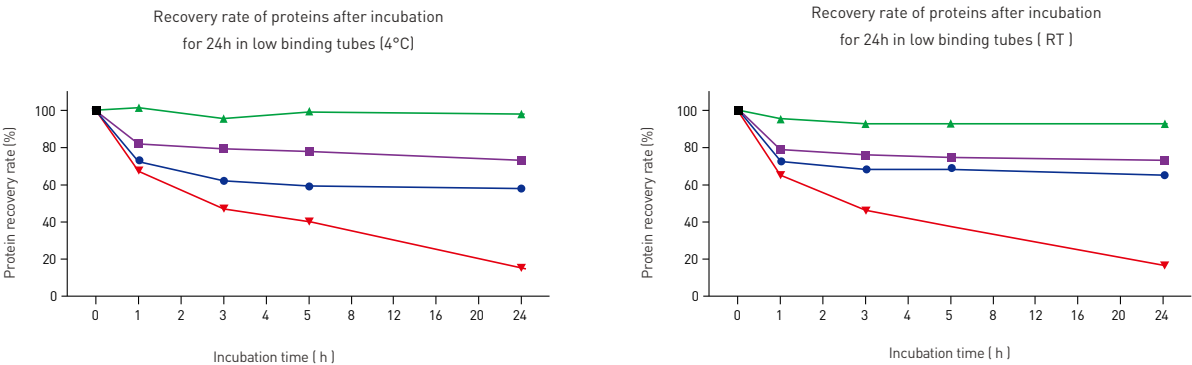


Microcentrifuge tubes from different suppliers are used, with 10 in a group, to fill an equal volume of 150 μ L (0.1 ng/ μ L) of DNA solution diluted with DNA diluent, and incubated at 37°C for 24 h. The DNA recovery rate was determined by real-time PCR technology.

The Low DNA microcentrifuge tube of GVS has a high recovery rate for nucleic acid samples and can minimize the loss of nucleic acid samples.

Comparison Test Results of Typical Protein Recovery

Low Protein Microcentrifuge Tubes - Minimal protein samples loss



Microcentrifuge tubes from different suppliers are used to fill an equal volume of 1 µg/mL FITC-IgG protein solution, and stored in the dark at room temperature and 4°C. Measure the fluorescence values at 1 h, 3 h, 5 h, and 24 h, and calculate the average recovery rate (n = 6). The Low Protein microcentrifuge tube of GVS has a higher recovery rate for protein samples and can minimize the loss of protein samples.



Ordering information

Product Number	Low Binding	Capacity(mL)	Maximum RCF (xg)	Sterile	Qty. Per Bag/Case
CELCUJGLP0005N	Protein	0.5	30,000	No	50/400
CELCUJGLP1005S	DNA	0.5	30,000	No	50/1200
CELCUJGLP0015N	Protein	1.5	25,000	No	50/400
CELCUJGLP1015S	DNA	1.5	25,000	No	50/1000
CELCUJGLP0020N	Protein	2.0	25,000	No	50/400
CELCUJGLP1020S	DNA	2.0	25,000	No	50/1000
CELCUJGLD0005N	Protein	0.5	30,000	Yes	50/400
CELCUJGLD1005S	DNA	0.5	30,000	Yes	50/1200
CELCUJGLD0015N	Protein	1.5	25,000	Yes	50/400
CELCUJGLD1015S	DNA	1.5	25,000	Yes	50/1000
CELCUJGLD0020N	Protein	2.0	25,000	Yes	50/400
CELCUJGLD1020S	DNA	2.0	25,000	Yes	50/1000



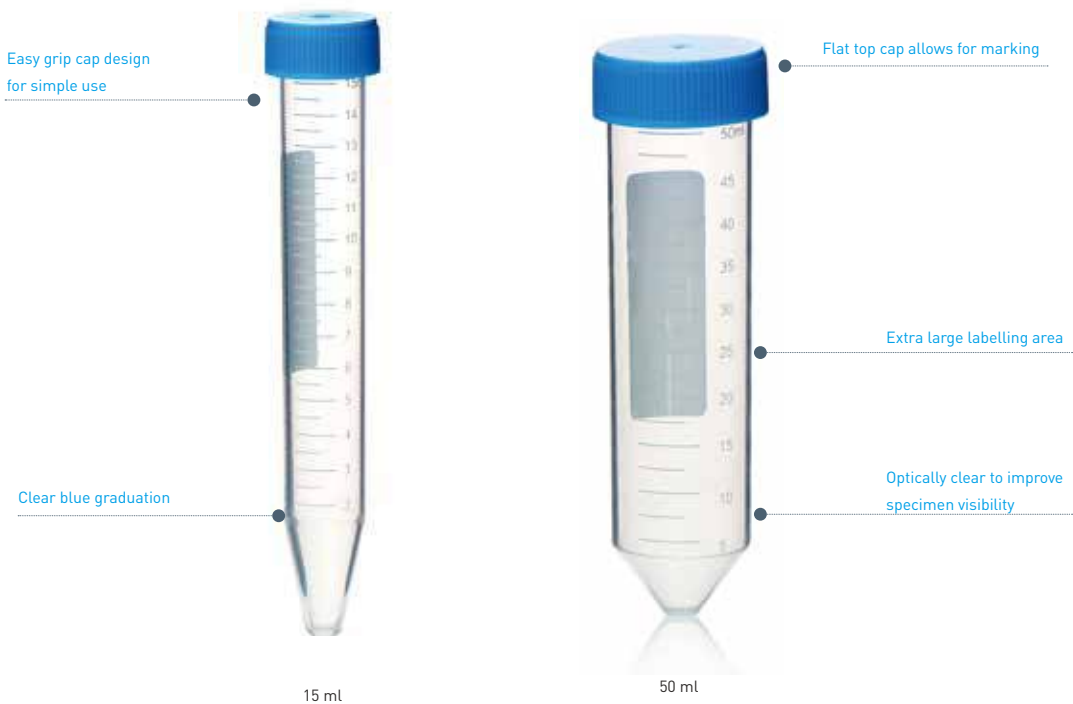
Centrifuge Tube



Intended for daily preparation, centrifugation, transportation, storage of solid and liquid specimens or reagents.

Features

- Consistent biological and physical properties, High transparent, medical grade PP material with flat caps for marking.
- RCF rating up to 12,000 xg.
- Easy-to-read printed graduations and a large white frosted area for labelling.
- Leak-proof.
- Packed in convenient durable racks or reusable Zip-lock bags.



15 ml DIM. 17x120 mm, Printed graduation range from 1.5 to 15 ml, interval at 0.5 ml

Product Code	Sterile	Packing
CELCUCG4610X1921S	Gamma	25 pcs/rack, 500 pcs/carton
CELCUCG4610X1922S	Gamma	50 pcs/zip-lock bag, 500 pcs/carton
CELCUCG4610X1923NS	Non sterile	50 pcs/zip-lock bag, 500 pcs/carton
CELCUCG4610X1924S	E.O.	1 pc/pack, 50 pcs/box, 500 pcs/carton

50 ml DIM. 30x115 mm, Printed graduation range from 5 to 47.5 ml, interval at 2.5 ml

Product Code	Sterile	Packing
CELCUCG4610X1940S	Gamma	25 pcs/rack, 300 pcs/carton
CELCUCG4610X1941S	Gamma	25 pcs/zip-lock bag, 500 pcs/carton
CELCUCG4610X1942NS	Non sterile	25 pcs/zip-lock bag, 500 pcs/carton
CELCUCG4610X1943S	E.O.	1 pc/pack, 50 pcs/box, 500 pcs/carton

50 ml Self-standing, DIM. 30x117 mm, Printed graduation range from 5 to 47.5 ml, interval at 2.5 ml

Product Code	Sterile	Packing
CELCUCG4610X1981S	Gamma	25pcs/zip-lock bag,500pcs/carton
CELCUCG4610X1982NS	Non sterile	25pcs/zip-lock bag,500pcs/carton
CELCUCG4610X1983NS2	Non sterile	50pcs/bag,500pcs/carton
CELCUCG4610X1984S02	E.O.	1pc/pack,50pcs/box,500pcs/carton

50 ml Self-standing, DIM. 30x107 mm, Blue cap, Printed graduation range from 5 to 50 ml, interval at 5 ml

Product Code	Sterile	Packing
CELCUCG4610X1894NS8	Non sterile	50pcs/bag, 500pcs/carton
CELCUCG4610X1897NS8	Non sterile	25pcs/zip-lock bag, 500pcs/carton
CELCUCG4610X1895S08	E.O. sterile	50pcs/bag, 500pcs/carton
CELCUCG4610X1898S08	E.O. sterile	25pcs/zip-lock bag, 500pcs/carton
CELCUCG4610X1896S08	E.O. sterile	Individual flow pack, 50pcs/box, 500pcs/carton



50 ml conical self standing

50 ml self standing



Metal-Free Centrifuge Tubes

The metal-free centrifuge tubes are made of transparent polypropylene (PP). They have been specially treated to ensure that more than 30 kinds of trace metal elements that can interfere with experiments are kept at levels of less than 1ppb (ICP-MS method). They are ideal for a variety of environmental tests such as water analysis, and other applications where samples may be contaminated by heavy metals in centrifuge tubes.



Features

- ASpecification: 15 mL 50 mL
- ACap Type: Flat
- ABottom Type: Conical
- APackaging: Re-sealable Bag Paper Rack Bulk

Materials

- ATube Body: Polypropylene (PP),
- ATube Cap: High-density polyethylene (HDPE), conforming to USP Class VI standards



Ordering information

Product Code	Capacity (mL)	Bottom	Sterile	Maximum RCF (×g)	Package	Qty.Per Bag(Rack, Bulk)	Qty. Per Case
CELCUJGMFCT0150A	15	Conical	Y	12,500	Re-sealable bag	25	500
CELCUJGMFCT1150A	15	Conical	Y	12,500	Paper rack	50	500
CELCUJGMFCT2150A	15	Conical	Y	12,500	Bulk	500	500
CELCUJGMFCT0500A	50	Conical	Y	12,500	Re-sealable bag	25	500
CELCUJGMFCT1500A	50	Conical	Y	12,500	Paper rack	25	500
CELCUJGMFCT2500A	50	Conical	Y	12,500	Bulk	500	500



15 ml Centrifuge Tubes with Puncture Hole

These products are made of high-quality transparent polymer polypropylene (PP); the cap features a butyl rubber stopper for connecting to a syringe.



Features

- ASpecification: 15 mL
- ABottom Type: Conical
- AMaterials: Tube body: Polypropylene (PP), Tube cover:High-density polyethylene (HDPE), conforming to USP Class VI standards



Ordering information

Product Number	Volume (mL)	Bottom	Sterile	Max Rotational Speed (×g)	Package	Qty. Per Bag	Qty. Per Case
CELCUJG013150BDA	15	Conical	Y	12500	Re-sealable bag	Cap:100 Tube:25	Cap:500 Tube:500



CellWell Tissue Culture Plate Inserts

Tissue culture plate inserts are extensively used in a variety of cell tests, including co-culture tests, chemotaxis tests, and cell migration tests. With the membrane technology, cells that grow in vitro are more similar to those growing in vivo in terms of morphology and function. They are also used for studying cell functions such as cellular transport, absorption and secretion.

A Membrane Pore Size: 0.1 μm 0.4 μm 3.0 μm 5.0 μm 8.0 μm 12.0 μm

A Specification: 6-well 12-well 24-well

A Materials: Membrane: Polycarbonate(PC)/Polyethylene terephthalate(PET),

A Main Body: Polystyrene (GPPS), conforming to USP Class VI standards



Features

A Excellent transmittance of the PET membrane, facilitating observation by microscope; Compared to the PET membrane, cell adhesion is stronger on the PC membrane and its higher pore density enables easier exchange of transmembrane substances

A 3 configurations of cell culture plate inserts and a variety of membrane pore sizes are available to meet a variety of different experimental requirements

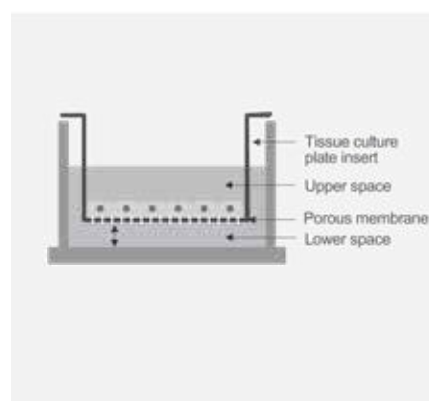
A Innovative nested edge design facilitates sample addition

A Special central suspension design protects monolayer cells while preventing cell culture medium loss

A Excellent chemical compatibility of the membrane makes it compatible with most staining and fixed reagents

A Sterilized by irradiation, SAL 10⁻⁶

A DNase/RNase-free, non-pyrogenic and non-cytotoxic



Chemical Compatibility

The PC membrane and PET membrane are suitable for histological fixatives such as methanol and formaldehyde, and also tolerate alcohol, amines, lipids, ethers, ketones and petroleum solvents (such as halogenated hydrocarbon and DMSO). In particular, the PET membrane has very good chemical applicability. However, strong acid and alkaline solutions are not recommended.

Pore Density

The PET membrane and PC membrane have a rated pore density. In comparison, the PET membrane has a lower pore density than the PC membrane but is superior in terms of its optical performance.

The central suspension design of our tissue culture plate inserts leaves a certain distance between the nest and the bottom, so that the monolayer cells will not be destroyed when the nest is moved away, and culture medium loss via capillary action between the nested wall and pore wall can be prevented.

Ordering information

Polycarbonate (PC) Membrane Tissue Culture Plate Inserts

Product Code	Well	Pore Size(μm)	Growth Area for Insert Membrane (cm²)	Sterile	Qty. Per Box	Qty. Per Case
CELCUJG000006A	6	0.1	4.67	Y	6	24
CELCUJG001006A	6	0.4	4.67	Y	6	24
CELCUJG005006A	6	1.0	4.67	Y	6	24
CELCUJG002006A	6	3.0	4.67	Y	6	24
CELCUJG003006A	6	8.0	4.67	Y	6	24
CELCUJG100006A	6	12.0	4.67	Y	6	24
CELCUJG000012A	12	0.1	1.12	Y	12	48
CELCUJG001012A	12	0.4	1.12	Y	12	48
CELCUJG005012A	12	1.0	1.12	Y	12	48
CELCUJG002012A	12	3.0	1.12	Y	12	48
CELCUJG003012A	12	8.0	1.12	Y	12	48
CELCUJG100012A	12	12.0	1.12	Y	12	48
CELCUJG000024A	24	0.1	0.33	Y	12	48
CELCUJG001024A	24	0.4	0.33	Y	12	48
CELCUJG005024A	24	1.0	0.33	Y	12	48
CELCUJG002024A	24	3.0	0.33	Y	12	48
CELCUJG003024A	24	8.0	0.33	Y	12	48
CELCUJG004024A	24	5.0	0.33	Y	12	48
CELCUJG100024A	24	12.0	0.33	Y	12	48

Polyethylene Terephthalate (PET) Membrane Tissue Culture Plate Inserts

Product Code	Well	Pore Size(μm)	Growth Area for Insert Membrane (cm²)	Sterile	Qty. Per Box	Qty. Per Case
CELCUJG017006A	6	0.1	4.67	Y	6	24
CELCUJG016006A	6	0.4	4.67	Y	6	24
CELCUJG018006A	6	1.0	4.67	Y	6	24
CELCUJG019006A	6	3.0	4.67	Y	6	24
CELCUJG020006A	6	8.0	4.67	Y	6	24
CELCUJG017012A	12	0.1	1.12	Y	12	48
CELCUJG016012A	12	0.4	1.12	Y	12	48
CELCUJG018012A	12	1.0	1.12	Y	12	48
CELCUJG019012A	12	3.0	1.12	Y	12	48
CELCUJG020012A	12	8.0	1.12	Y	12	48
CELCUJG017024A	24	0.1	0.33	Y	12	48
CELCUJG016024A	24	0.4	0.33	Y	12	48
CELCUJG018024A	24	1.0	0.33	Y	12	48
CELCUJG019024A	24	3.0	0.33	Y	12	48
CELCUJG020024A	24	8.0	0.33	Y	12	48

Polycarbonate (PC) Membrane Tissue Culture Plate Inserts

Product Code	Pore Size (μm)	Culture Area (cm²)	Suggested Working Volume (mL)	Qty. Per Plate	Qty. Per Case
CELCUJG021024A	0.4	0.47	1.1	24	96

Cell Strainer

Compatible for 250mL/225mL Conical Centrifuge Bottles



Pore Size: 40µm 70µm 100µm

Color: Blue White Yellow

Materials: Frame: Polypropylene (PP), Bottom: Nylon mesh, conforming to USP Class VI standards

The cell strainer is a sterile sieving device that quickly separates primary culture cells from cell clusters and tissues. It effectively removes cell aggregates or large particles from cell suspensions to ensure accurate subsequent experiments such as flow cytometry and cell sorting.

GVS cell strainers (compatible for 250mL/225mL conical centrifuge bottles) feature an enclosed frame side and a mesh bottom structure, with a mesh diameter of 20.5mm and a bottom frame outer diameter of 25.1mm. These specifications are tailored for GVS 250mL and 225mL conical centrifuge bottles but also compatible with most similar conical bottles on the market. The frame side includes two venting spacers to facilitate ventilation, effectively preventing mesh clogging and liquid overflow.



Features

- A Mesh diameter of 20.5mm and bottom frame outer diameter of 25.1mm, compatible for most of 250mL and 225mL conical centrifuge bottles. ①
- A The strainer's frame side features two venting spacers for enhanced ventilation, effectively preventing mesh clogging and liquid overflow. ②
- A Enclosed frame sides minimize residual samples.
- A Extension edge of the strainer frame allows for aseptic operations.

- A Frame and edge can be marked in different colors for easy handling and identification.
- A The bottom consists of an evenly distributed nylon mesh, ensuring reliable and consistent experiment results.
- A Blister packaging features a groove design for easy access.
- A Sterilized by irradiation to SAL 10⁻⁶; DNase/RNase-free, non-pyrogenic, an non-cytotoxic.

Ordering information

Product Code	Pore Size	Strainer Diameter (mm)	Bottom Outer Diameter (mm)	Color	Sterile	Qty. Per Box	Qty. Per Case
CELCUJG013040A	40µm (330 mesh)	20.5	25.1	Blue	Y	50	200
CELCUJG013070A	70µm (220 mesh)	20.5	25.1	White	Y	50	200
CELCUJG013100A	100µm (150 mesh)	20.5	25.1	Yellow	Y	50	200
CELCUJG014040A	40µm (330 mesh)	20.5	25.1	Blue	Y	50	200
CELCUJG014070A	70µm (220 mesh)	20.5	25.1	White	Y	50	200
CELCUJG014100A	100µm (150 mesh)	20.5	25.1	Yellow	Y	50	200
CELCUJG015040A	40µm (330 mesh)	30.7	35.7	Blue	Y	50	200
CELCUJG015070A	70µm (220 mesh)	30.7	35.7	White	Y	50	200
CELCUJG015100A	100µm (150 mesh)	30.7	35.7	Yellow	Y	50	200
CELCUJG025040A	40µm (330 mesh)	30.7	35.7	Blue	Y	50	200
CELCUJG025070A	70µm (220 mesh)	30.7	35.7	White	Y	50	200
CELCUJG025100A	100µm (150 mesh)	30.7	35.7	Yellow	Y	50	200

Small Cell Strainer

Compatible with 1.5mL-15mL Centrifuge Tubes, Flow Cytometry Tubes and Culture Tubes



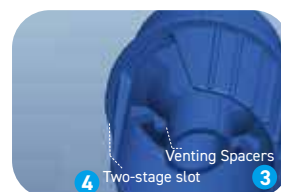
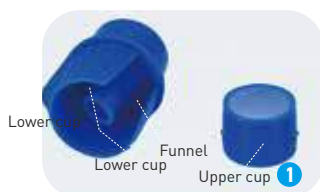
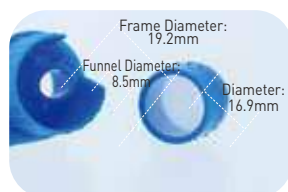
Pore Size: 40µm 70µm 100µm

Color: Blue White Yellow

Materials: Frame: Polypropylene (PP), Bottom Mesh: Nylon, conforming to USP Class VI standards

The cell strainer is a sterile sieving device that quickly separates primary culture cells from cell clusters and tissues. It effectively removes cell aggregates or large particles from cell suspensions to ensure accurate subsequent experiments such as flow cytometry and cell sorting.

GVS small cell strainers feature a split design with separate upper and lower cups, with a mesh diameter of 16.9mm, a lower cup inner diameter of 19.2mm, and a funnel outer diameter of 8.5mm. The upper cup of the small cell strainer is designed for filtration and collection, while the lower cup features a two-stage slot that enhances its compatibility. Additionally, the special venting spacers and air slots in the lower cup effectively prevent mesh clogging and liquid overflow.



Features


- A** Split Design: The innovative split design allows for the inverted collection of residual cells into the upper cup, effectively minimizing sample loss **1**
- A** Special venting spacers **2** and air slots **3** in the lower cup prevent mesh clogging and liquid overflow, ensuring smooth filtration
- A** Wide compatibility: suitable for most centrifuge tubes, flow cytometry tubes, and culture tubes on the market with an inner diameter greater than 9mm and an outer diameter less than 19mm
- A** Strainers of different pore sizes can be stacked for one-step sequential filtration, enhancing efficiency
- A** The frame handle supports aseptic operation, reducing the risk of contamination during handling
- A** Evenly distributed nylon mesh bottom, providing consistent experimental results
- A** The easy-to-tear individual packaging facilitates sterile operation and prevents contamination
- A** Sterilized by irradiation to SAL 10⁻⁶; DNase/RNase-free, non-pyrogenic and non-cytotoxic

Compatible Tubes/Bottles




Instruction for use

Filtration




Connect the strainer to a 15mL centrifuge tube and add the cell suspension into the upper cup for filtration.

Inversion



Invert the upper cup, connect the strainer to another 15mL centrifuge tube, and rinse back any residue on the strainer mesh.

Stacking



Stack strainers of different mesh sizes for sequential filtration of varying cell sizes. Note that larger mesh pore size are above smaller ones.



Ordering information

Product Code	Pore Size	Mesh Diameter (mm)	Lower Cup Diameter (mm)	Funnel Diameter (mm)	Upper Cup Capacity (mL)	Color	Sterile	Packaging	Qty. Per Box	Qty. Per Case
CELCUJG016040A	40µm (330 pores)	16.9	19.2	8.5	2.2	Blue	Y	Paper plastic bag	/	50
CELCUJG016070A	70µm (220 pores)	16.9	19.2	8.5	2.2	White	Y	Paper plastic bag	/	50
CELCUJG016100A	100µm (150 pores)	16.9	19.2	8.5	2.2	Yellow	Y	Paper plastic bag	/	50
CELCUJG026040A	40µm (330 pores)	16.9	19.2	8.5	2.2	Blue	Y	Blister packed	50	200
CELCUJG026070A	70µm (220 pores)	16.9	19.2	8.5	2.2	White	Y	Blister packed	50	200
CELCUJG026100A	100µm (150 pores)	16.9	19.2	8.5	2.2	Yellow	Y	Blister packed	50	200

Cell Scrapers

Cell Scrapers: The specially designed cell scraper features a turning function to ensure that an ideal angle is maintained during cell collection, which makes it convenient for manually harvesting adherent cells from culture vessels.

Rotatable Cell Scrapers: The blade angle of the cell scraper changes with a slight pressure on the handle using the forefinger, which pushes the handle downward towards the floor of the culture vessel.



Specification

- Length: 25 cm 39 cm
- Materials: Blade: TPE, Handle: ABS, conforming to USP Class VI standards
- Blade Specification: 2.0 cm 3.0 cm

Features

- Two blade specifications available: scraper and lifter
- Specially designed to make the process of scraping and collecting cells easier and more effective
- Ultra-thin, flexible swivel blades are easy to use, reducing cell damage
- Easy removal and collection of cells using a scraping or lifting motion
- The 25 cm cell scraper is suitable for T25 and T75 culture flasks, while the 39 cm cell scraper is designed for other culture flasks/spinner bottles with higher capacities
- Individually wrapped
- Sterilized by irradiation, SAL 10-6
- ADNase/RNase-free, non-pyrogenic and non-cytotoxic

Ordering information

Product Code	Blade (cm)	Total Length (cm)	Material	Blade Position	Sterile	Qty. Per Bag	Qty. Per Case
CELCUJG011025A	2.0	25	Blade/TPE; Handle/ABS	Scraper	Y	1	100
CELCUJG012025A	2.0	25	Blade/TPE; Handle/ABS	Lifter	Y	1	100
CELCUJG011039A	3.0	39	Blade/TPE; Handle/ABS	Scraper	Y	1	100
CELCUJG012039A	3.0	39	Blade/TPE; Handle/ABS	Lifter	Y	1	100

Cell Spreaders

Designed for spreading and dispersing liquids onto the surface of an agar plate Made of PP material, autoclavable, Supplied with triangle shaped and T shaped

PACKING:

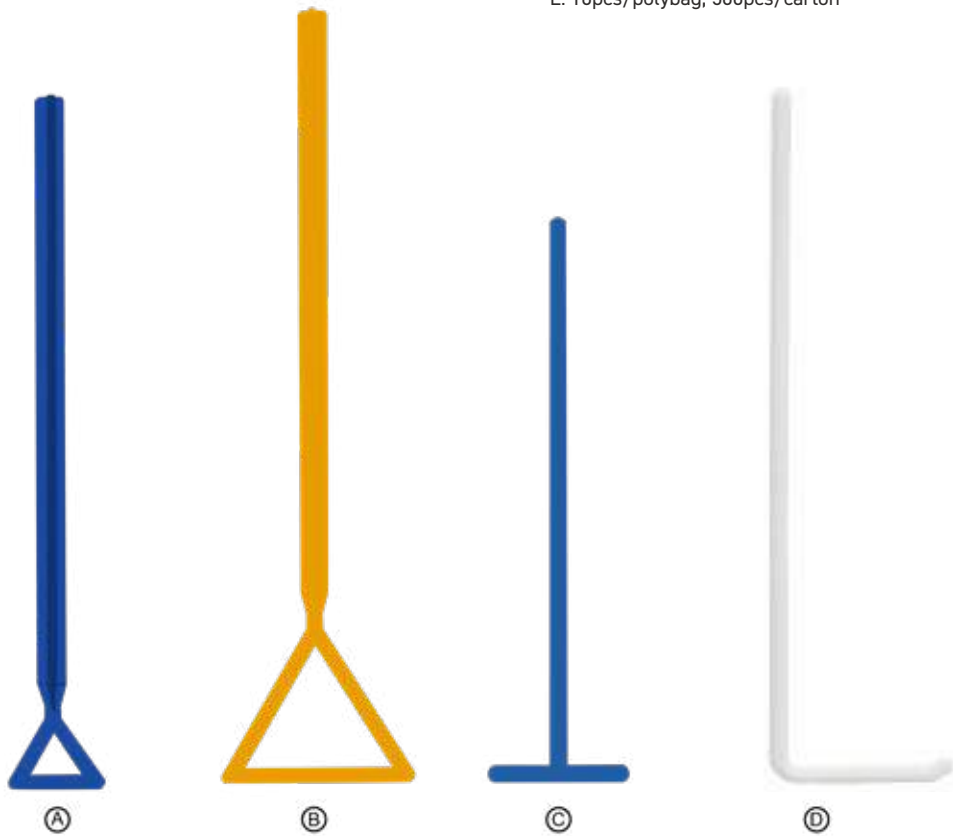
A: Individual Peel Pack, 100pcs/dispenser box,1,000pcs/carton

B: 10pcs/polybag, 1000pcs/carton

C: 10pcs/polybag, 400pcs/carton

D: Individual Peel Pack, 400pcs/dispenser box, 4,000pcs/carton

E: 10pcs/polybag, 500pcs/carton



A 215x30mm

Product Code	Sterile	Color	Packing
CELCUCG2400X0001X02A	Gamma	Blue	Type A
CELCUCG2400X0002X02A	-	Blue	Type B

B 240x60mm

Product Code	Sterile	Color	Packing
CELCUCG2400X0003X17A	Gamma	Yellow	Type A
CELCUCG2400X0004X17A	-	Yellow	Type B

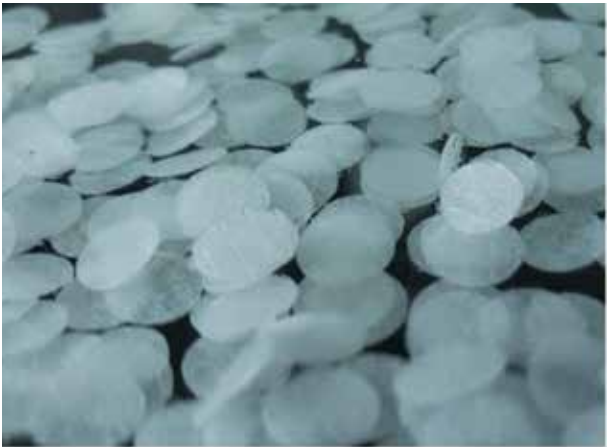
C T Shape, 140x35mm

Product Code	Sterile	Color	Packing
CELCUCG2400X0005X02A	Gamma	Blue	Type D
CELCUCG2400X0006X02A	-	Blue	Type E

D I Shape, 149x40mm

Product Code	Sterile	Color	Packing
CELCUCG2400X0011X16A	E.O.	White	Type D

Flake Microcarrier



The flake carrier is a highly hydrophilic flake carrier, which uses vacuum plasma surface treatment technology and chemical grafting modification technology to enrich the flake carrier with more hydrophilic groups such as amino, hydroxyl or carboxyl groups, so that the cell adhesion performance of the carrier is stronger, which is not only suitable for subculture of Vero cells, HEK293 cells, CHO cells, BHK21 cells, ST cells, SF9/21 cells, etc., but also for CEF cells, PAM cells and CAR-T cells. Culture of primary cells.

Features

- ADouble surface hydrophilic modification technology, treatment strong cell adhesion performance.
- AEfficiently and simply isolate cultures and cells, harvest products, and perform perfusion or continuous fed-batch culture.
- AAutoclavable.
- ACan be used in packed bed bioreactors, single-use

- bioreactors, culture vessels, shake flasks to provide sufficient surface area for cell growth. - High area/volume ratio, high cell density.
- AMultiple tension structures ensure that nutrients in the medium are in full contact with cells, which is conducive to cell growth.

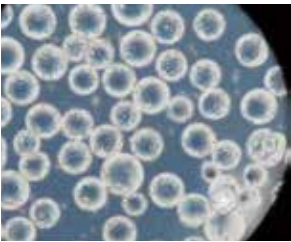
Ordering information

Product Code	Description	Package	Bottle/case
CELCUFG090050S	Flake Microcarrier	50 g/bottle	40
CELCUFG090250S	Flake Microcarrier	250 g/bottle	20
CELCUFG090500S	Flake Microcarrier	500 g/bottle	10
CELCUFG090001S	Flake Microcarrier	1 kg/bottle	4

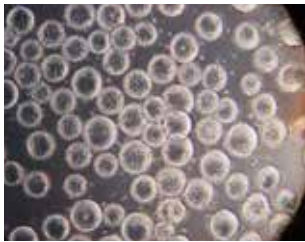


Spherical Microcarrier

The spherical carrier is a spherical microcarrier formed by bonding diethylaminochloroethane on agarose microspheres, which makes cells easy to attach. It is also the most widely used microcarrier for adherent cell suspension culture. , mainly used for the research and development and production of biological products. It is suitable for subculture of Vero cells, HEK293 cells, Mrc-S cells, CHO cells, BHK21 cells, MDCK cells, ST cells, Marc14S cells, SF9/21 cells, etc. It is also suitable for CEF cells, PAM cells, myeloma cells and culture of primary cells such as CAR-T cells.



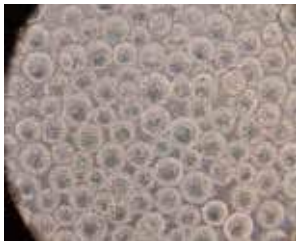
Cells were cultured for 24 h (100x)



Cells were cultured for 48 h (100x)



Cells were cultured for 72 h (100x)



Cells were cultured for 96 h (100x)

Features

- Efficient and simple isolation of cultures and cells, harvesting of products, perfusion or continuous feeding.
- It can be cultured in large-scale stirred bioreactors, single use bioreactors and shake flasks to provide sufficient surface area for cell growth.
- High area/volume ratio, high cell density.

It is easy to enlarge the cells. The cells can be digested from the carrier and then inoculated into the new carrier, or the new carrier can be directly added to realize the "ball-to-ball" method to expand the culture.



Ordering information

Product Code	Description	Package	Bottle/case
CELCUFG100050S	Spherical Microcarrier	50 g/bottle	40
CELCUFG100250S	Spherical Microcarrier	250g/bottle	20
CELCUFG100500S	Spherical Microcarrier	500g/bottle	10
CELCUFG100001S	Spherical Microcarrier	1 kg/bottle	4



Square Media Bottle

Ultra Clean Versions

Square media bottles have excellent gas barrier properties for storage and sampling of active pharmaceutical ingredients and bulk intermediates, and are also ideal for the preparation and storage of buffers, serum, culture fluids, or long-term storage of pH-sensitive liquids. The bottle is sterile and shatterproof with ergonomic square design, easier to use.



- A Made of polyester (PET, PETG) with polypropylene cap.
- A It is produced by injection stretch blow molding process, which has stronger gas barrier ability, high gloss of the bottle body, smooth inner and outer walls, the solution does not hang on the wall.
- A Light weight, impact resistance, material can withstand -70°C low temperature, chemical resistance, good stability.
- A High transparency, and the bottle body has a molded scale, which is convenient for visual observation of the solution volume.
- A Cobalt 60 sterilization treatment, no pyrogen, no DNase, no RNase.
- A The square ergonomic design is easy to grip and saves space.
- A Anti-leakage, the lid and the bottle mouth cooperate more closely, and multiple control to ensure no leakage.

Note: This product does not support high temperature autoclave, only for storage. Can not be used as heating container.

Square Media Bottle

Ordering information

PET						
Product Code	Volume (ml)	Neck diameter (mm)	Height (without cap)	Height (with cap)	pcs/pack	pcs/case
CELCUFG084125S	125	35.4	104	108	24	96
CELCUFG084250S	250	35.4	140	144	56	224
CELCUFG084500S	500	35.4	172.5	176.5	20	80
CELCUFG084010S	1000	35.4	213	217	20	40

PETG						
Product Code	Volume (ml)	Neck diameter (mm)	Height (without cap)	Height (with cap)	pcs/pack	pcs/case
CELCUFG080060S	60	21.5	80.4	82.2	24	192
CELCUFG080125S	125	35.4	104	108	24	96
CELCUFG080250S	250	35.4	140	144	30	60
CELCUFG080500S	500	35.4	172.5	176.5	24	48
CELCUFG080010S	1000	35.4	213	217	12	24



Closed Sampling System

- A Provide thermoplastic tube or silicone tube for customers to choose.
- A The acquiescent size of the liquid transfer line is IN 1/4", OD 7/16".

- A Provide MPC/Luer connector for customers to choose.
- AA A variety of pipeline brands are available,the length and diameter of the pipeline can also be customized according to requirements.



Bottle With Two Ports Tubing

Product Code	Volume	Sterile	Material	pcs/pack	Material
CELCUFG088250S	250	30	60	Irradiation sterilization	PETG
CELCUFG088500S	500	24	48	Irradiation sterilization	PETG
CELCUFG088001S	1000	12	24	Irradiation sterilization	PETG



Bottle With Three Ports Tubing

Product Code	Volume	Sterile	Material	pcs/pack	Material
CELCUFG089250S	250	30	60	Irradiation sterilization	PETG
CELCUFG089500S	500	24	48	Irradiation sterilization	PETG
CELCUFG089001S	1000	12	24	Irradiation sterilization	PETG

Carboy bottle

The main body of the carboy is made of PC material, which can withstand high temperature processing and low temperature freezing storage, and is an ideal choice for storing sterile liquids, dispensing solutions and culture media.

Features

- A The bottle body is produced by ISB one step molding process, which has better appearance and overall sealing.
- A A variety of liquid conversion caps and sealing caps can be selected. Handle design for easy access.
- A Endurance temperature-80~125 degrees.
- A Standard size of barrel mouth, which can realize seamless replacement of most liquid storage barrels.
- A The carboy body has a molded scale, which is convenient for liquid distribution and use.
- A Slim mouth design, the carboy body has high transparency, easy to observe the solution state. Autoclavable.



Large mouth tee cover inner piping configuration Liquid inlet: 200mm IN 3/8 OD 5/8 Platinum vulcanized siliconeTubing,Liquid end:500mm IN 3/8 OD 5/8

Ordering information

Product Number	Volume (L)	Height (mm)	Diameter (mm)	Cap type	Inner diameter of external pipeline(mm)	Pcs/case
CELCUFG091010S	10	534.23	224	seal cap	-	4
CELCUFG098010S	10	534.23	224	Big mouth two ports cap	6.35	4
CELCUFG099010S	10	534.23	224	Big mouth three ports cap	6.35	4



General Labware

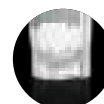
CryoNOVA Cryogenic Tube

Double injection molding instead of traditional silicone seal ring inserting, to ensure the sealing performance of the cap.

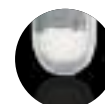
Do not use Cryogenic tubes in the liquid phase of liquid nitrogen. These cryogenic tubes are suited for research and general laboratory storage of cell cultures, bacteria and other samples in the vapor phase of liquid nitrogen.

Features

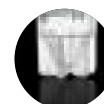
- Produced from virgin PP material, the cap with a silicone gasket mounted in cap for additional leak-proof assurance
- Large writing areas for more sample information printed graduation for accurate measurement
- Sterilized and certified non-pyrogenic and RNase-free and DNase-free
- Self standing, star shaped and round bottom are available



Type A



Type B



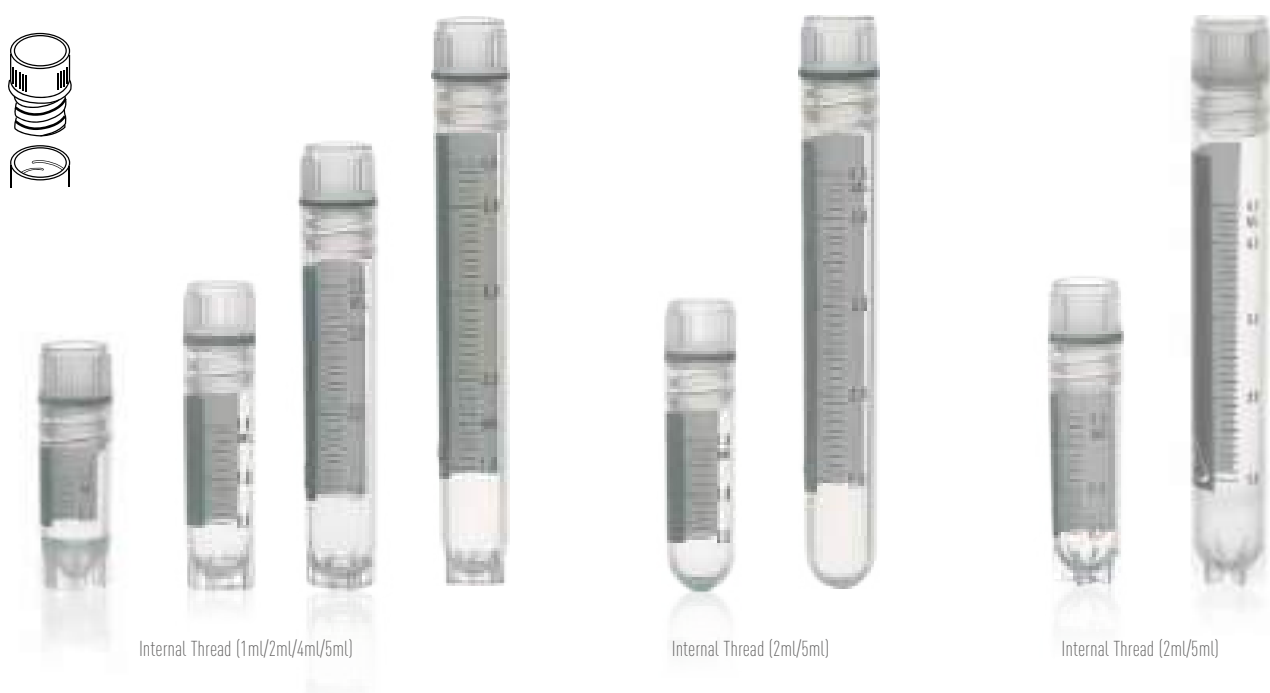
Type C



External Thread (1ml/2ml/4ml/5ml)

External Thread (2ml/5ml)

External Thread (2ml/5ml)



Internal Thread (1ml/2ml/4ml/5ml)

Internal Thread (2ml/5ml)

Internal Thread (2ml/5ml)



CryoNOVA Cryogenic Tube, External Thread, PP Material

External thread type can minimize liquid retention.

Product Code	TYPE	VOL. (mL)	DIM.(H X OD) (mm)	Graduations(mL)	Packing
PLAC4004X1749S	A	1.0	41 x12.4	0.5/1.0	50pcs/zip-lock bag, 500pcs/inner box, 2000pcs/carton
PLAC4004X1725S	A	2.0	48.5 x12.4	0.5/1.0/1.8	50pcs/zip-lock bag, 500pcs/inner box, 2000pcs/carton
PLAC4004X1744S	B	2.0	48.5 x12.4	0.5/1.0/1.8	50pcs/zip-lock bag, 500pcs/inner box, 2000pcs/carton
PLAC4004X1745S	C	2.0	48.5 x12.4	0.5/1.0/1.8	50pcs/zip-lock bag, 500pcs/inner box, 2000pcs/carton
PLAC4004X1754S	A	4.0	70.3 x12.4	1.0/2.0/3.0/3.6	25pcs/zip-lock bag, 250pcs/inner box, 1000pcs/carton
PLAC4004X1726S	A	5.0	91.3 x12.4	1.0/2.0/3.0/4.0/4.5	25pcs/zip-lock bag, 250pcs/inner box, 1000pcs/carton
PLAC4004X1746S	B	5.0	91.3 x12.4	1.0/2.0/3.0/4.0/4.5	25pcs/zip-lock bag, 250pcs/inner box, 1000pcs/carton
PLAC4004X1737S	C	5.0	91.3 x12.4	1.0/2.0/3.0/4.0/4.5	25pcs/zip-lock bag, 250pcs/inner box, 1000pcs/carton

CryoNOVA Cryogenic Tube, Internal Thread, PP Material

Internal thread type can minimize liquid retention and suit for storage in the vapor phase of liquid nitrogen.

Product Code	TYPE	VOL. (mL)	DIM.(H X OD) (mm)	Graduations (mL)	Packing
PLAC4004X1721S	A	1.0	41 x12.3	0.5/1.0	50pcs/zip-lock bag, 500pcs/inner box, 2000pcs/carton
PLAC4004X1722S	A	2.0	49 x12.3	0.5/1.0/1.8	50pcs/zip-lock bag, 500pcs/inner box, 2000pcs/carton
PLAC4004X1741S	B	2.0	49 x12.3	0.5/1.0/1.8	50pcs/zip-lock bag, 500pcs/inner box, 2000pcs/carton
PLAC4004X1742S	C	2.0	49 x12.3	0.5/1.0/1.8	50pcs/zip-lock bag, 500pcs/inner box, 2000pcs/carton
PLAC4004X1723S	A	4.0	70.3 x12.3	1.0/2.0/3.0/3.6	25pcs/zip-lock bag, 250pcs/inner box, 1000pcs/carton
PLAC4004X1738S	A	5.0	91.3 x12.4	1.0/2.0/3.0/4.0/4.5	25pcs/zip-lock bag, 250pcs/inner box, 1000pcs/carton
PLAC4004X1739S	B	5.0	91.3 x12.4	1.0/2.0/3.0/4.0/4.5	25pcs/zip-lock bag, 250pcs/inner box, 1000pcs/carton
PLAC4004X1740S	C	5.0	91.3 x12.4	1.0/2.0/3.0/4.0/4.5	25pcs/zip-lock bag, 250pcs/inner box, 1000pcs/carton

Screw Cap Micro Tubes

The secure screw cap with O-ring seal in conjunction with the robust design makes the screw cap micro tube indispensable in your lab. They are ideal for centrifugation, transport, storage, and short-term cold storage.

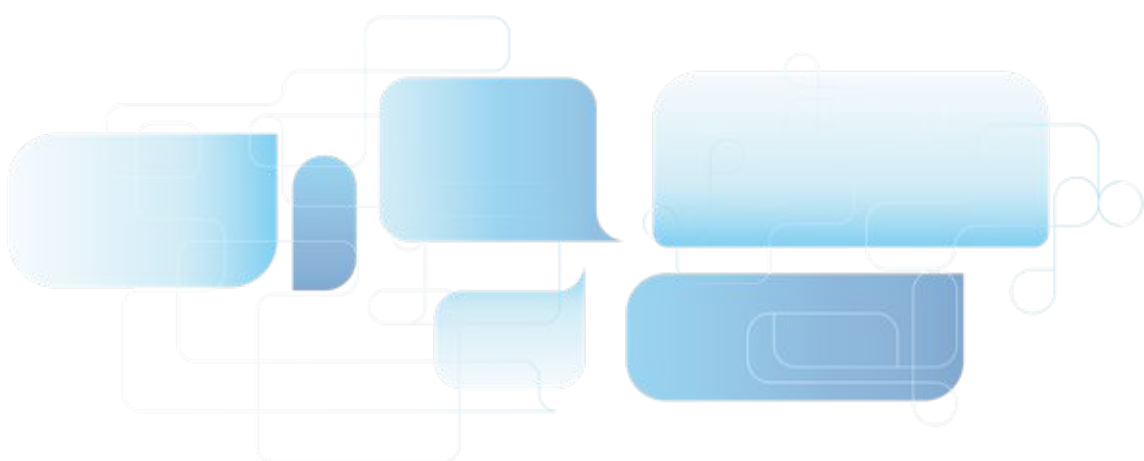
Features

- AMade from 100% virgin polypropylene to help ensure maximum clarity for biological-basedwork
- AUniform wall thickness to withstand RCF 12000 xg
- AKnurled Cap helps you achieve a firm grip when opening and closing
- AKnurls lock tube into specialty racks for single-handed operation
- AScrew cap micro tubes are available with the option of multicolored caps, attached or unattached cap

Ordering information

Packing:100pcs/bag, 1000pcs/carton

Product Code	VOL.(ML)	Sterile
PLAC4004X1835S	1.5	Y
PLAC4004X1836S	2	Y



Transport Tube with Swab Capture Cap

95 kpa

- ATube in polypropylene /Cap in polyethylene
- ATransport tubes are designed for the safe storage and transport of biological materials.
- AThe polyethylene cap feature a swab capture design to ensure the swab can be hold securely inside the cap, making it ideal for specimen collection and protection from contamination.
- AThe transparent polypropylene tubes allow unobstructed viewing of the sample.
- AThe tubes are shatter-proof and may be exposed to freezing temperatures.
- AThe tubes feature a frosted writing surface to make sample identification more convenient.
- AOffered in five popular sizes

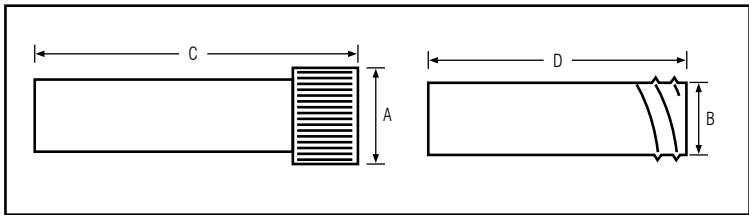


Swab Capture Design



	Product Code	VOL	DIM(MM)	Graduations	Tube/Cap	Packing
1	PLAC4004X1514NS	5ml	16 x 56.5	Molded graduation	Assembled	100pcs/bag, 1000pcs/carton
	PLAC4004X1515NS	5ml	16 x 56.5	Molded graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton
2	PLAC4004X1562NS	5ml	16 x 60	Molded graduation	Assembled	100pcs/bag, 1000pcs/carton
	PLAC4004X1563NS	5ml	16 x 60	Molded graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton
3	PLAC4004X1512NS	8ml	16 x 85	Molded graduation	Assembled	100pcs/bag, 1000pcs/carton
	PLAC4004X1513NS	8ml	16 x 85	Molded graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton
4	PLAC4004X1579NS	10ml	16 x 94	Molded graduation	Assembled	100pcs/bag, 1000pcs/carton
	PLAC4004X1580NS	10ml	16 x 94	Molded graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton
5	PLAC4004X1590NS	10ml	16 x 102	Non graduation	Assembled	100pcs/bag, 1000pcs/carton
	PLAC4004X1592NS	10ml	16 x 102	Non graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton
6	PLAC4004X1597NS	7ml	13 x 80	Non graduation	Assembled	100pcs/bag, 1000pcs/carton
	PLAC4004X1596NS	7ml	13 x 80	Non graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carto

Note: Dimensions for tube only



	A(mm)	B(mm)	C(mm)	D(mm)
1	21	16	58	56.5
2	21	16	62	60
3	21	16	89.5	85
4	21	16	96	94
5	21	16	102	100
6	17	13	80	82

Pre-Filling Transport Tube

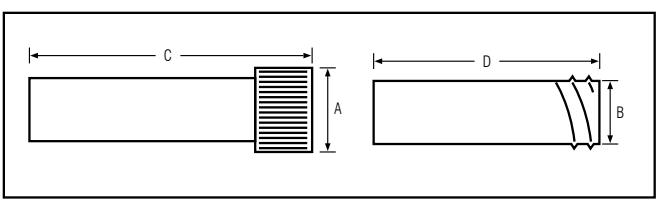


- ATube in polypropylene /Cap in polyethylene
- AThe standard pre-filling transport tube with the perfect seal is designed for pre-filling of transport liquid medium to preserve the viability of virus or bacteria during transport, as VTM/ UTM, and biological reagent for specimen analysis, and bacteria culture media for viewing growth.
- AThe transparent polypropylene tubes allow unobstructed viewing of the sample.
- AThe tubes are shatter-proof and may be exposed to freezing temperatures.
- AThe tubes are self-standing with conical bottom.
- AThe tubes can be supplied with a label on request
- AGamma Sterile



	Product Code	VOL	DIM(MM)	Graduations	Tube/Cap	Packing
1	PLAC4004X1576S	5ml	16 x 56.5	Molded graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton
2	PLAC4004X1577S	8ml	16 x 85	Molded graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton
3	PLAC4004X1578S	10ml	16 x 94	Molded graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton
4	PLAC4004X1593S	12ml	16 x 102	Non graduation	Separate	100tubes/bag+1,000caps/bag, 1,000tubes+1,000caps/carton

Note: Dimensions for tube only



	A(mm)	B(mm)	C(mm)	D(mm)
1	21	16	58	56.5
2	21	16	89.5	85
3	21	16	96	94
4	21	16	102	100

Premium PCR Consumables Series

PCR Plates

The PCR plate is the carrier of an amplification reaction system in Polymerase Chain Reaction (PCR) experiments, which is widely used in genetics, biochemistry, immunology, medicine and other fields. The raw materials of the GVS PCR plates conform to USP Class VI standards. The plate surface is flat, firm and not easy to deform. The thin wall design of the tube body features good thermal conductivity and ensures high-efficiency PCR reaction.

ASpecification: 96-well non-skirted, 96-well semi-skirted
96-well agree fully skirted

ACapacity: 0.2 mL/well

AColor: Transparent, white

AMaterial: Polypropylene (PP), conforming to USP Class VI standards



Features

- A**Thin tube wall design, uniform thickness, rapid and uniform heat transfer, reliable results and strong repeatability.
- A**The plate surface is flat and firm, resistant to warping, and remains reliable and non-deformable in automated, high temperature and high pressure (121°C, 20 min) processes, high-speed centrifugation (2000 ×g) and other operations.
- A**The edge of the wells protrude to prevent cross-contamination and to facilitate sealing, which can effectively reduce the evaporation of samples after sealing.
- A**Black letter markings to help quickly identify and trace samples when manually adding samples.
- A**Transparent and white plates are available. The white PCR plate is good for reading low-signal fluorescence values, reduce background fluorescence interference, and are more suitable for qPCR experiments.
- A**The plate type conforms to SBS/ANSI international standards; high adaptability and compatible with many mainstream brands of PCR/qPCR instruments.
- A**Each well is tested for 100% leak tightness to ensure safe sample handling.
- A**Human-derived DNA-free, DNase/RNase-free, pyrogen-free, PCR inhibitor-free, ATP-free.



Thin tube wall design,
uniform thickness



The edge of the wells is
protruding to prevent cross-
contamination and to
facilitate sealing



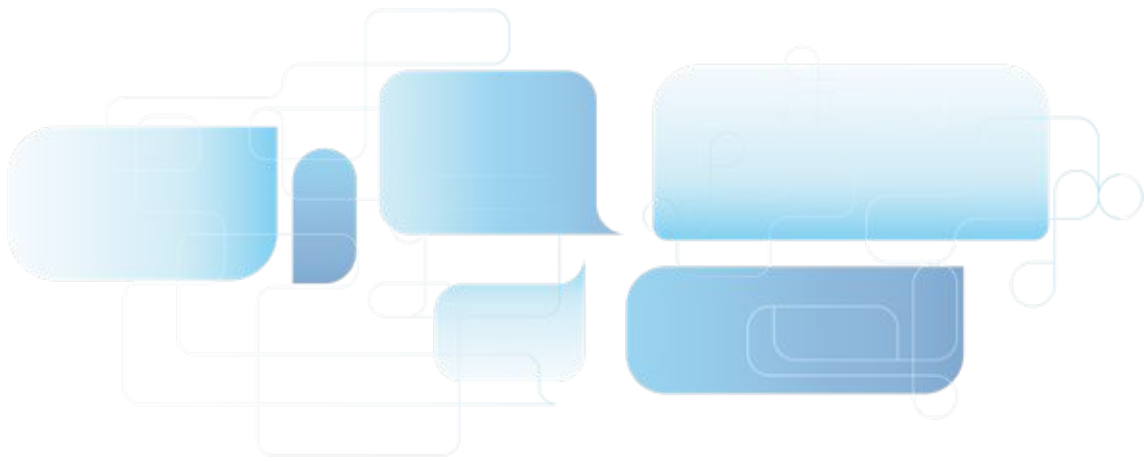
Black letter marking



White PCR plate

Ordering information

Product Code	Capacity(mL)	Specifcation(Well)	Skirted	Color	Sterile	Qty.Per Box	Qty. Per Case
PLAJPCRD00096A	0.2	96	Non-skirted	Transparent	N	10	100
PLAJPCRD10096A	0.2	96	Semi-skirted	Transparent	N	10	100
PLAJPCRD20096A	0.2	96	Fully skirted	Transparent	N	10	100
PLAJPCRD01096A	0.2	96	Non-skirted	Transparent	Y	10	100
PLAJPCRD11096A	0.2	96	Semi-skirted	Transparent	Y	10	100
PLAJPCRD21096A	0.2	96	Fully skirted	Transparent	Y	10	100
PLAJPCRE00096A	0.2	96	Non-skirted	White	Y	10	100
PLAJPCRE10096A	0.2	96	Semi-skirted	White	Y	10	100
PLAJPCRE20096A	0.2	96	Fully skirted	White	Y	10	100



PCR Tubes

The disposable PCR tube of GVS, with a capacity of 0.2 mL, is made of polypropylene (PP) conforming to USP Class VI standards. When used as the carrier of a PCR amplification system, it can repeatedly withstand high and low temperatures. For low-and medium-throughput PCR/qPCR experiments, the disposable PCR tube is an ideal solution.

Specification: 8-tube strip, single-tube

Color: Transparent, white

Material: Polypropylene (PP), conforming to USP Class VI standards



Features

- Thin tube wall design, uniform thickness, rapid and uniform heat transfer, reliable results and strong repeatability.
- Support high-RCF centrifugation (10000 ×g), autoclave sterilization (121°C, 20 min) and other operations.
- The tube cap fits perfectly with the body, ensuring a strong sealing performance. This effectively reduces the evaporation rate.
- Different markings at the head and end of the joint cap for easy identification of direction.
- Transparent and white tubes are available. The white PCR tube is good for reading low-signal fluorescence values and reduces background fluorescence interference, and is more suitable for qPCR experiments.
- DNase/RNase-free, human-derived DNA-free, PCR inhibitor-free, ATP-free, pyrogen-free.



Thin tube wall design, uniform thickness



The tube cap is well matched with the body, good sealing



Different marks at the head and end of the joint cap for easy identification of direction



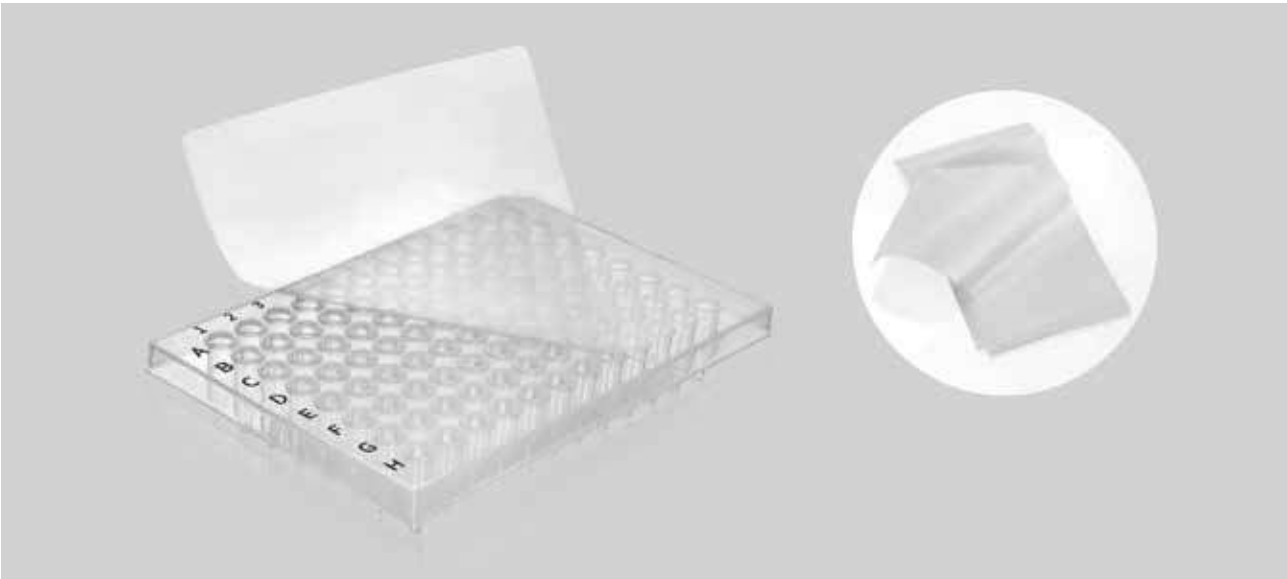
White PCR tubes

Ordering information

Product Code	Description	Color	Sterile	Qty. Per Bag	Qty. Per Case
PLAJPCRD10200A	0.2mL PCR Tubes with Flat Cap, Single	Transparent	N	1000	10000
PLAJPCRD20200A	0.2mL PCR Tubes with Flat Cap, 8 Strips	Transparent	N	125	1250
PLAJPCRD11200A	0.2mL PCR Tubes with Flat Cap, Single	Transparent	Y	1000	10000
PLAJPCRD21200A	0.2mL PCR Tubes with Flat Cap, 8 Strips	Transparent	Y	125	1250
PLAJPCRE20200A	0.2mL PCR Tubes with Flat Cap, 8 Strips	White	Y	125	1250
PLAJPCRF20200A	0.2mL PCR Tubes with Flat Cap, 8 Strips	Transparent	N	125	1250
PLAJPCRF21200A	0.2mL PCR Tubes with Flat Cap, 8 Strips	Transparent	Y	125	1250

PCR Plate Sealing Film

GVS PCR plate sealing film can be used for routine 96-well PCR experiment, qPCR experiment, sample storage, etc. Two types of common PCR microplate sealers and qPCR microplate sealers are available.



Common PCR Plate Sealing Film

- Material:** composed of PP material conforming to USP Class VI standard in the upper layer and medical grade adhesive in the lower layer
- Thickness of sealing film:** 50 μm
- Temperature tolerance range:** -80°C to 121°C

Economical and easy to use, suitable for mainstream PCR plates; Good sealing, low evaporation, prevents cross-contamination of samples between wells.

qPCR Plate Sealing Film

- Material:** The qPCR plate sealing film is composed of a layer of high-transparency PP sealer conforming to USP Class VI standard and medical grade adhesive
- Thickness of adhesive sealer:** 50 μm
- Temperature tolerance range:** -80°C to 121°C

Innovative adhesives ensure a safe seal without sticking to skin and gloves; Good sealing, low evaporation, prevents cross-contamination of samples between wells; No autofluorescence, suitable for fluorescent quantitative PCR.

Ordering information

Product Code	Type	Specification (Length mm*Width mm)	Sterile	Qty. Per Box	Qty. Per Case
PLAJPCRD00001A	PCR	137.5*82	N	100	1000
PLAJPCRD01001A	PCR	137.5*82	Y	100	1000
PLAJPCRD00003A	qPCR	140*80	N	100	1000
PLAJPCRD01003A	qPCR	140*80	Y	100	1000

Recommended storage conditions: 10°C-27°C, 40%-60% relative humidity



Cuvettes



Cuvettes are a common consumable in spectral laboratory analysis. The GVS cuvettes are made of transparent polymer, polystyrene (PS), for its good chemical compatibility, and can be used for optical determination of most polar organic solutions, weak acidic solutions and weak alkaline solutions.

Materials: Polystyrene (GPPS), conforming to USP Class VI standards

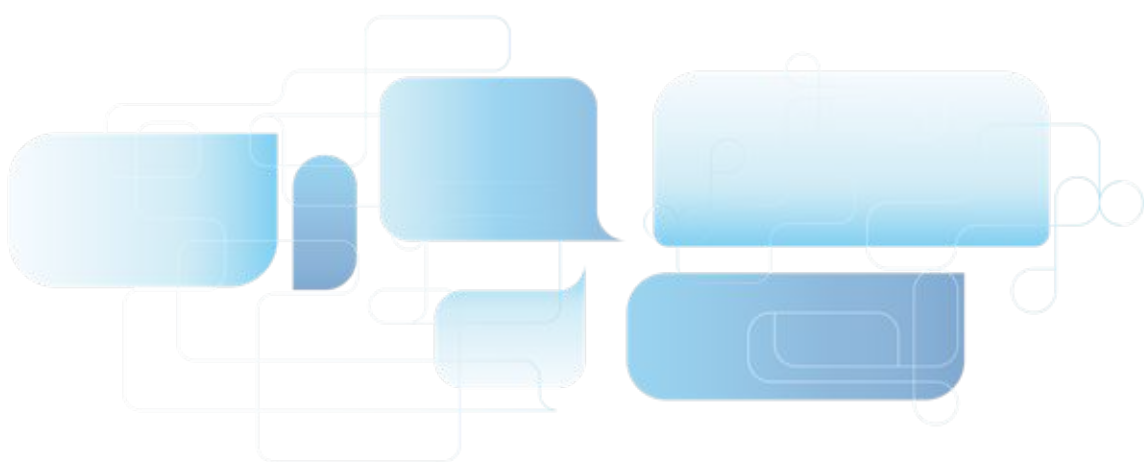
Features

- Available as standard type and semi-micro type (spectral range: 400 nm to 800nm, optical path: 10 mm)
- Made of high-quality optical plastic with good chemical compatibility
- Thanks to precision optical processing technology, the optical performance error of the light transmission surface is $\leq 0.3\%$

- Recessed window reduces the risk of scratches during use
Matte surface provides an ideal labelling and operating area
- The semi-micro cuvette is marked with a light path arrow to ensure the consistency of projection direction

Ordering information

Product Code	Type	Volume (mL)	Recommended Working Capacity(mL)	Optical Path (mm)	Optical Windows (piece)	Sterile	Qty. Per Box	Qty. Per Case
PLAJCUVE10015A	Semi-micro	1.5	1-2.5	10	2	N	100	1000
PLAJCUVE10045A	Standard	4.50	3-4	10	2	N	100	1000



Centrifuge Tube Stands

The centrifuge tube stands are suitable for 2.0 mL, 15 mL and 50 mL conical-bottom centrifuge tubes. They can be used in combination with conical centrifuge tubes in the laboratory.

Materials: Polypropylene (PP), conforming to USP Class VI standards



Features

- The holes are designed for both 2.0 mL standard micro centrifuge tubes and 15 mL and 50 mL conical centrifuge tubes.

The multi-hole design of the tube stand allows for accommodation of three 2.0 mL micro centrifuge tubes, three 15 mL centrifuge tubes and one 50 mL centrifuge tube.
- Can be cleaned for re-use

The product is designed in the shape of a round table, making it extremely stable

Working temperature range:-80°C-121°C

Sterilized and non-sterilized available, sterilized by irradiation to SAL 10⁻⁶

ADNase/RNase-free, non-pyrogenic

Ordering information

Product Code	Product Description	Sterile	Qty.Per Bag	Qty. Per Case
PLAJ320191001A	7 holes, suitable for 2.0 mL microcentri- fuge tube and 15 mL, 50 mL conical centrifuge tubes	N	1	50
PLAJ320192001A		Y	1	50
PLAJ320191002A		N	5	50
PLAJ320192002A		Y	5	50

Freezing Box

Cross-Linked Polyethylene Foam with a Solid State Core, in combination with a -80 °C freezer, will provide alcohol-free freezing at the rate of -1 °C /minute that is ideal for cryopreservation of most cells and cell lines

- For 12 standard 1.0 mL to 2.0 mL cryogenic vials.
- Ease to use, freezing profiles are consistent and reproducible.
- Alcohol and fluid-free freezing, lowest cost of use than alcohol-based devices.
- High cell recovery and cell viability.
- Exposed vial tops when lid is open for quick, organized removal of frozen samples.



Ordering information

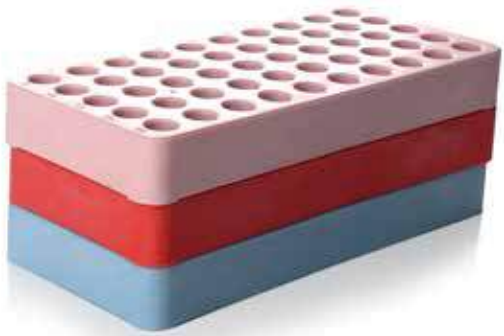
Product Code	Material	Packing
PLAC2510X1702A	PE	1pc/box, 12pcs/carton

Cryo Vial Rack

This workstation rack accommodates both round bottom and self-standing cryogenic tubes. The self-standing tubes lock into the rack for easily one-handed opening and closing of caps.

- Dimension: 208(L) x 93(W) x 25(H) mm
- Each position is identified with an alphanumeric index

Product Code	Color	Packing
PLAC2510X1501X02A	Blue	1pc/bag, 50pcs/carton
PLAC2510X1501X13A	Red	1pc/bag, 50pcs/carton
PLAC2510X1501X08A	Green	1pc/bag, 50pcs/carton
PLAC2510X1501X09A	Purple	1pc/bag, 50pcs/carton
PLAC2510X1501X12A	Pink	1pc/bag, 50pcs/carton



Cryo Vial Rack



Designed for storing 1.0~10ml cryogenic vials above the ultra-low temperature -273°C

- Aluminum Block Material
- Autoclavable and resistant to universal chemicals
- Maintains temperature through direct contact with ice, dry ice, water, liquid nitrogen
- High durability and non-deformation

Product Code	Place Layout	DIM. (MM)	Color	Packing
PLAC4050X4513A	5x7	135x100x36	Blue	1pc/inner box, 20pcs/carton



Cell Freezing Container

Designed for storing 1.8ml cryotubes within temperature ranges of -196°C to 121°C

Material: PP

Packing: 1pc/polybag, 50pcs/carton

Box, bottom & lid separated



Ordering information

Product Code	Place	Place Layout
PLAC2510X1101A	81	9x9
PLAC2510X1102A	100	10x10

Box, with hinged-lid

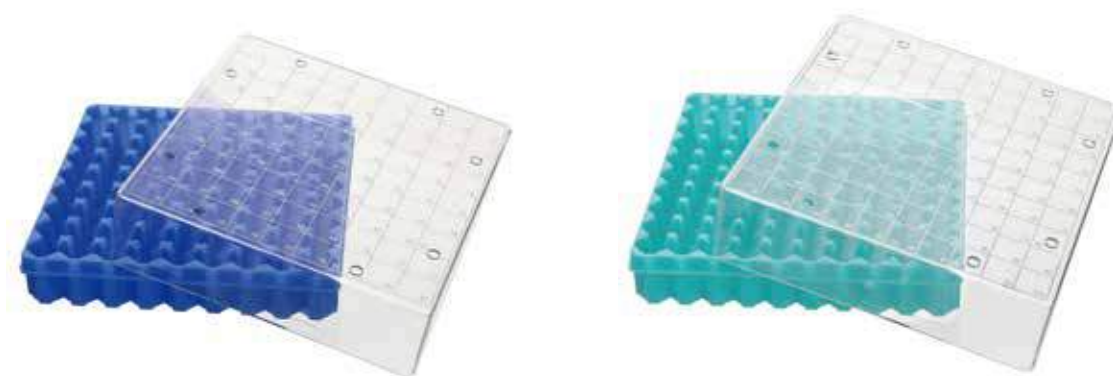


Ordering information

Product code	Color	Place	Place Layout
PLAC2510X1104X02A	Blue	100	10 x 10
PLAC2510X1104X17A	Yellow	100	10 x 10
PLAC2510X1104A	Neutral	100	10 x 10

Cryogenic Storage Box

- Printed numerical grid for easy identification
- Transparent lid for viewing contents
- Each box features one angled corners to guarantee proper alignment of the grid
- Autoclavable
- Boxes have vent holes for drainage and rapid freezing
- Fits in stainless steel freezer racks



Ordering information

Product code	Description	For cryogenic tube	Packing
PLAC2510X1106A	81-place (9*9)	1-2ml, external thread	1pc/bag, 100pcs/carton
PLAC2510X1107A	100-place (10*10)	1-2ml, internal thread	1pc/bag, 100pcs/carton

Ice Bucket



Suitable for use with ice, dry ice, dry ice alcohol slurries and liquid nitrogen within temperature ranges of -196°C to 93°C

- Made of EVA Foam, non-toxic and tasteless
- High durability and excellent insulation
- Chemical resistant and inert to moisture, odors, acetone and dry ice
- Secure handling and transport with molded handles
- Different dimension and color are optional



Large

Packing: 1pc/inner box, 12pcs/carton

Ordering information

Product Code	Dimension(MM) (TopxBottomxHeight)	Color
PLAC2513X0001X17A	255x160x175	Yellow
PLAC2513X0001X13A	255x160x175	Red
PLAC2513X0001X02A	255x160x175	Blue
PLAC2513X0001X08A	255x160x175	Green

Medium

Packing: 1pc/inner box, 18pcs/carton

Ordering information

Product Code	Dimension(MM) (TopxBottomxHeight)	Color
PLAC2513X0002X17A	255x190x115	Yellow
PLAC2513X0002X13A	255x190x115	Red
PLAC2513X0002X02A	255x190x115	Blue
PLAC2513X0002X08A	255x190x115	Green

Freezing Box, Carboard

Designed for the long-term storage of cryogenic vials and centrifuge tubes in freezer rack systems.

Each box has a liquid resistant coating

Storage Box for 15ml Centrifuge Tubes

Place: 36 <6 × 6>, Dimensions: 150×150×122 mm

For diam.17x120mm (15ml) centrifuge tubes

Product Code	Color	Packing
PLAC2510X1461X16A	White	48pcs/carton
PLAC2510X1462X02A	Blue	48pcs/carton
PLAC2510X1463X13A	Red	48pcs/carton
PLAC2510X1464X17A	Yellow	48pcs/carton
PLAC2510X1465X10A	Orange	48pcs/carton
PLAC2510X1466X08A	Green	48pcs/carton

Product Code	Packing
* PLAC2511X1499A	Replacement grid inserts(6x6), 12pcs/polybag, 40x12 pcs/carton



Storage Box for 50ml Centrifuge Tubes

Place:16 <4 × 4>, Dimensions: 150x150x122 mm

For diam. 30x115mm (50ml) centrifuge tubes

Product Code	Color	Packing
PLAC2510X1407X16A	White	48pcs/carton
PLAC2510X1408X02A	Blue	48pcs/carton
PLAC2510X1409X13A	Red	48pcs/carton
PLAC2510X1410X17A	Yellow	48pcs/carton
PLAC2510X1411X10A	Orange	48pcs/carton
PLAC2510X1412X08A	Green	48pcs/carton

Product Code	Packing
* PLAC2511X1491A	Replacement grid inserts(4x4), 12pcs/polybag, 40x12 pcs/carton



Box, with Exchange Holes



With 2 drain Dim. 27x5mm for drainage and rapid freezing

Each box is made of heavy-duty cardboard with white waterproof coating, the suitable working temperature range is -196°C to 121 °C .

Product Code	Place Layout	DIM.(mm)	For Tubes	Packing
PLAC2510X1459A	6 × 6	150x150x122	15ml conical tube	48pcs/carton
PLAC2510X1460A	4 × 4	150x150x122	50ml conical tube	48pcs/carton
PLAC2510X1461A	8 × 8	134x134x51	2" Cryotubes	96pcs/carton
PLAC2510X1462A	9 × 9	134x134x51	2" Cryotubes	96pcs/carton
PLAC2510X1463A	10 × 10	134x134x51	2" Cryotubes	96pcs/carton
PLAC2510X1464A	8 × 8	134x134x76	3" Cryotubes	48pcs/carton
PLAC2510X1465A	9 × 9	134x134x76	3" Cryotubes	48pcs/carton
PLAC2510X1466A	10 × 10	134x134x76	3" Cryotubes	48pcs/carton



Micro-centrifuge Tubes Rack PP Material

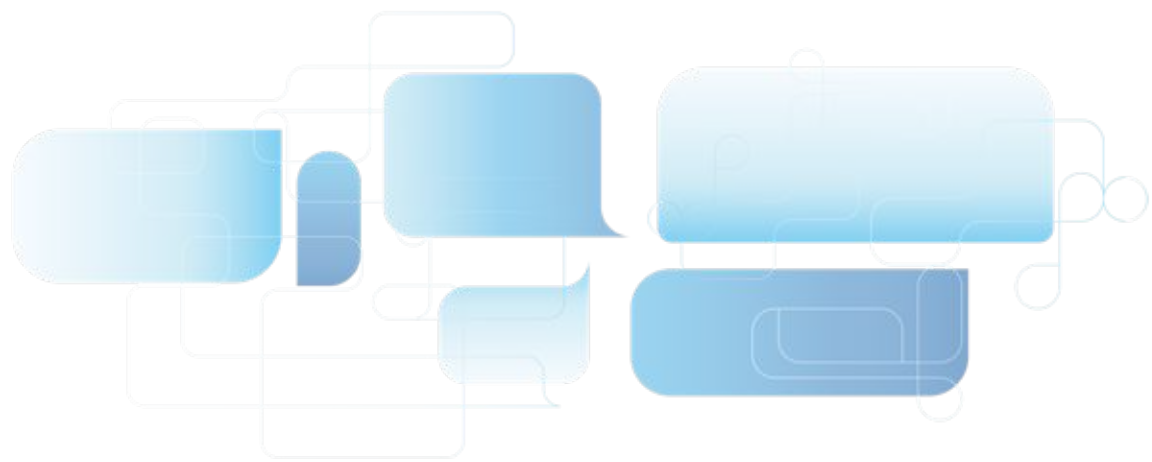
Designed for storing 0.5ml and 1.5ml micro-centrifuge tubes

- Withstand temperature from -70°C to 121°C
- Available with skirted design stackable
- Non-sterile, autoclavable



Ordering information

Product code	Color	Place	Packing
PLAC5460X2101X10A	Orange	60(5×12)	1pc/bag, 50pcs/carton
PLAC5460X2102X02A	Blue	60(5×12)	1pc/bag, 50pcs/carton
PLAC5460X2103X08A	Green	60(5×12)	1pc/bag, 50pcs/carton
PLAC5460X2104X13A	Red	60(5×12)	1pc/bag, 50pcs/carton
PLAC5460X2105X10A	Orange	96(8×12)	1pc/bag, 50pcs/carton
PLAC5460X2106X02A	Blue	96(8×12)	1pc/bag, 50pcs/carton
PLAC5460X2107X08A	Green	96(8×12)	1pc/bag, 50pcs/carton
PLAC5460X2108X13A	Red	96(8×12)	1pc/bag, 50pcs/carton



Centrifuge Tube Rack, ABS Material

Designed for holding both 15ml and 50ml centrifuge tubes in one rack

- ADimensions: 209×171×63mm
- APack in flat from simply assemble
- AHold twenty 50ml and thirty 15ml centrifuge tubes



Ordering information

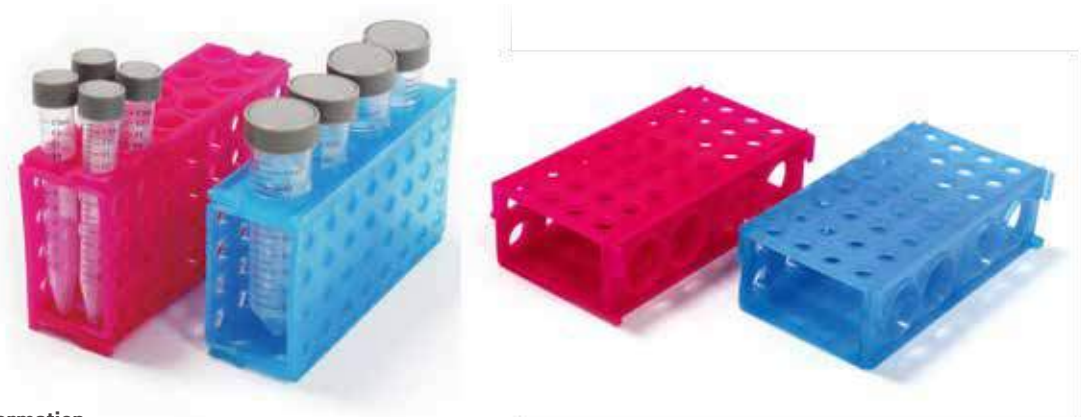
Product code	Description	Packing
PLAC4050X4303A	Rack, for 15mL and 50mL Centrifuge Tubes, Orange	50pcs/carton
PLAC4050X4304A	Rack, for 15mL and 50mL Centrifuge Tubes, Blue	50pcs/carton



Centrifuge Tube Rack, PP Material

Designed for holding 5ml, 15ml and 50ml centrifuge tubes in one rack

- ADimensions: 170×95×50mm
- AHold four 50ml, twelve 15ml, thirty-two 5ml centrifuge tubes
- AAutoclavable and chemicals-resistant



Ordering information

Product code	Description	Packing
PLAC4050X4113X13A	Rack, for 5ml, 15ml and 50ml centrifuge tube, Red	50pcs/carton
PLAC4050X4113X02A	Rack, for 5ml, 15ml and 50ml centrifuge tube, Blue	50pcs/carton

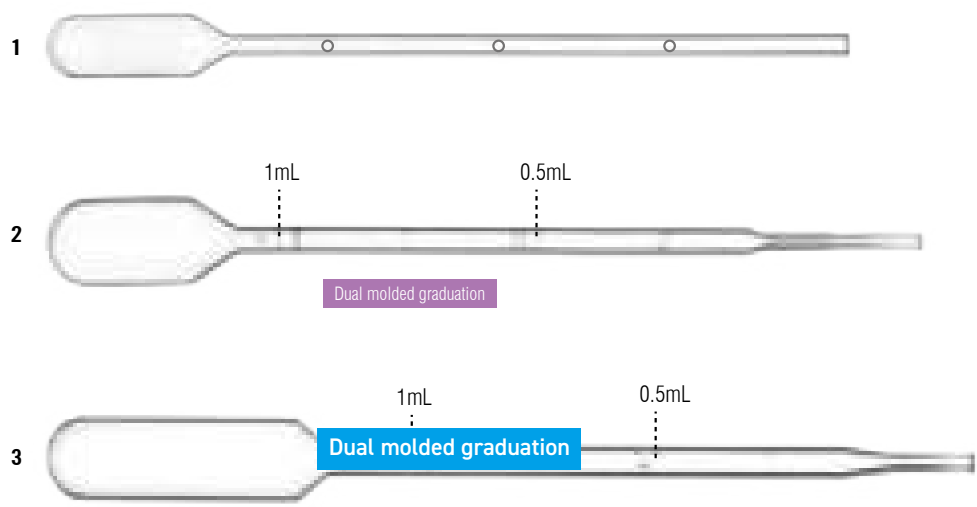
Plastic Pasteur Pipette

Ideal for transferring and dispensing small amounts of liquid safely and rapidly.

- LDPE material, excellent transparency
- Sizes rang from 0.5 ml to 23ml, with molded graduation or not
- Sterile and non-sterile are available

With Graduation

	Product Code	Length (mm)	Graduation	Overall Vol(ml)	Drops /ml	Sterile	Packing
1	PLAC4320X0611A	116	0.1mL up 0.3 mL	1.5	21	-	10x500pcs/dispenser box /carton
	PLAC4320X0612A	116	0.1mL up 0.3 mL	1.5	21	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0613A	116	0.1mL up 0.3 mL	1.5	21	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0614A	116	0.1mL up 0.3 mL	1.5	21	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X0615A	116	0.1mL up 0.3 mL	1.5	21	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X0616A	116	0.1mL up 0.3 mL	1.5	21	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
2	PLAC4320X0311A	140	1/4mL up 1 mL	3	-	-	10x500pcs/dispenser box /carton
	PLAC4320X0312A	140	1/4mL up 1 mL	3	-	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0313A	140	1/4mL up 1 mL	3	-	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0314A	140	1/4mL up 1 mL	3	-	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X0315A	140	1/4mL up 1 mL	3	-	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X0316A	140	1/4mL up 1 mL	3	-	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
3	PLAC4320X0111A	145	1/4mL up 1 mL	5	-	-	10x500pcs/dispenser box /carton
	PLAC4320X0112A	145	1/4mL up 1 mL	5	-	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0113A	145	1/4mL up 1 mL	5	-	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0114A	145	1/4mL up 1 mL	5	-	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X0115A	145	1/4mL up 1 mL	5	-	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X0116A	145	1/4mL up 1 mL	5	-	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton



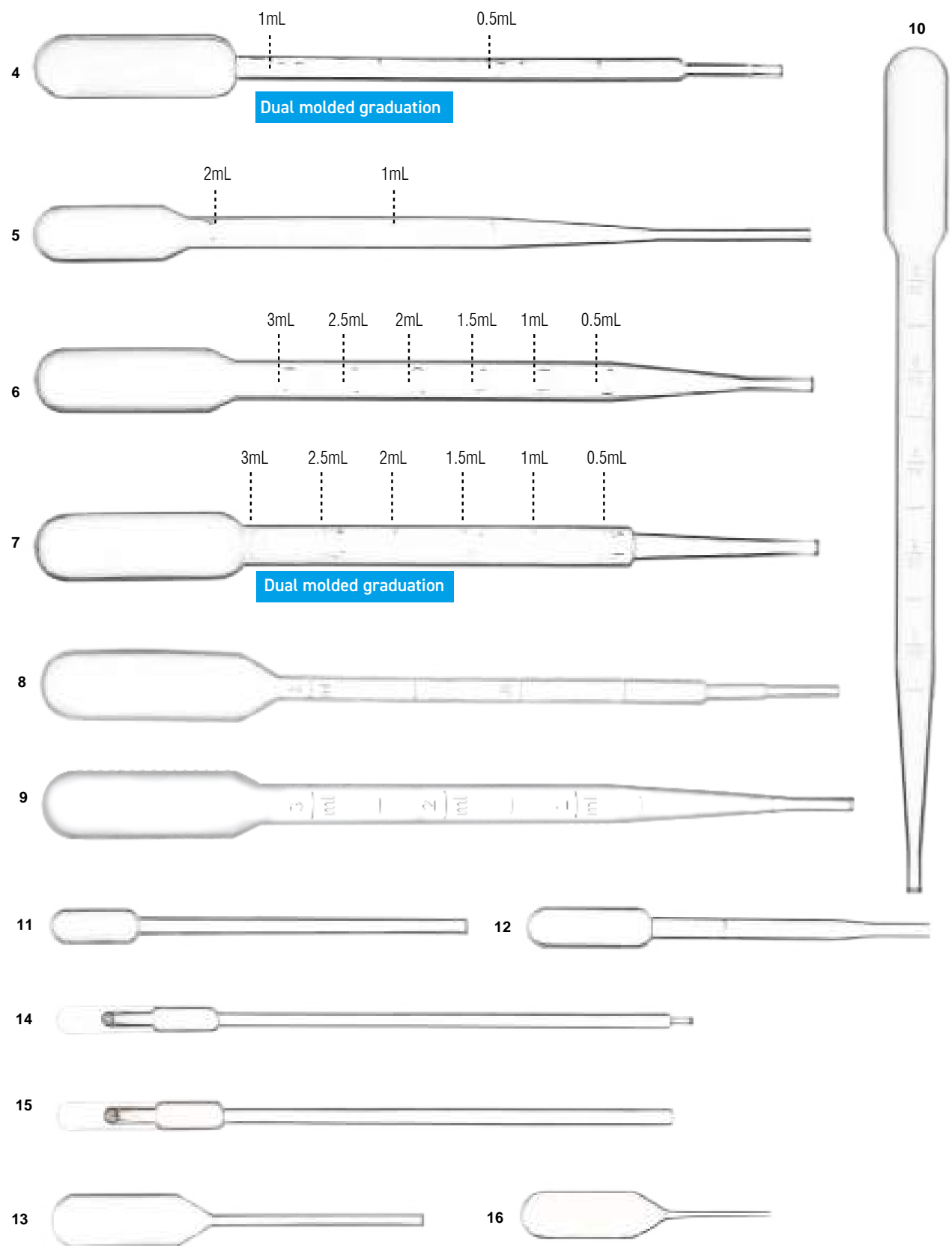
With Graduation

	Product Code	Length (mm)	Graduation	Overall Vol(ml)	Drops /ml	Sterile	Packing
4	PLAC4320X0211A	150	1/4mL up 1 mL	5	-	-	10x500pcs/dispenser box/carton.
	PLAC4320X0212A	150	1/4mL up 1 mL	5	-	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0213A	150	1/4mL up 1 mL	5	-	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0214A	150	1/4mL up 1 mL	5	-	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X0215A	150	1/4mL up 1 mL	5	-	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X0216A	150	1/4mL up 1 mL	5	-	E.O	5pcs/peel pack, 10x400pcs/dispenser box/carton
5	PLAC4320X0411A	155	1/2mL up 2 mL	5	-	-	10x500pcs/dispenser box /carton.
	PLAC4320X0412A	155	1/2mL up 2 mL	5	-	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0413A	155	1/2mL up 2 mL	5	-	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0414A	155	1/2mL up 2 mL	5	-	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X0415A	155	1/2mL up 2 mL	5	-	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X0416A	155	1/2mL up 2 mL	5	-	E.O	5pcs/peel pack, 10x400pcs/dispenser box/carton
6	PLAC4320X0511A	155	1/2mL up 3 mL	7	-	-	10x500pcs/dispenser box /carton
	PLAC4320X0512A	155	1/2mL up 3 mL	7	-	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0513A	155	1/2mL up 3 mL	7	-	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0514A	155	1/2mL up 3 mL	7	-	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X0515A	155	1/2mL up 3 mL	7	-	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X0516A	155	1/2mL up 3 mL	7	-	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
7	PLAC4320X3111A	148	1/2mL up 3mL	7.5	23	-	10x500pcs/dispenser box /carton
	PLAC4320X3112A	148	1/2mL up 3mL	7.5	23	E.O	10xIndividual flow-pack, 100pcs/dispenser box /carton
	PLAC4320X3113A	148	1/2mL up 3mL	7.5	23	E.O	10xIndividual peel-pack, 100pcs/dispenser box /carton
	PLAC4320X3114A	148	1/2mL up 3mL	7.5	23	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X3115A	148	1/2mL up 3mL	7.5	23	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X3116A	148	1/2mL up 3mL	7.5	23	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
8	PLAC4320X3611A	158	1/2mL up 1mL	5.5	-	-	6x500pcs/dispenser box /carton
	PLAC4320X3613A	158	1/2mL up 1mL	5.5	-	E.O	Individual flow-pack, 8x500pcs/dispenser box /carton
9	PLAC4320X3711A	160	1/2mL up 3mL	7	-	-	10x500pcs/dispenser box /carton
10	PLAC4320X3901A	210	1/2mL up 5mL	12	-	-	10x500pcs/dispenser box /carton
	PLAC4320X3902A	210	1/2mL up 5mL	12	-	E.O	10x100pcs/dispenser box /carton



Without Graduation

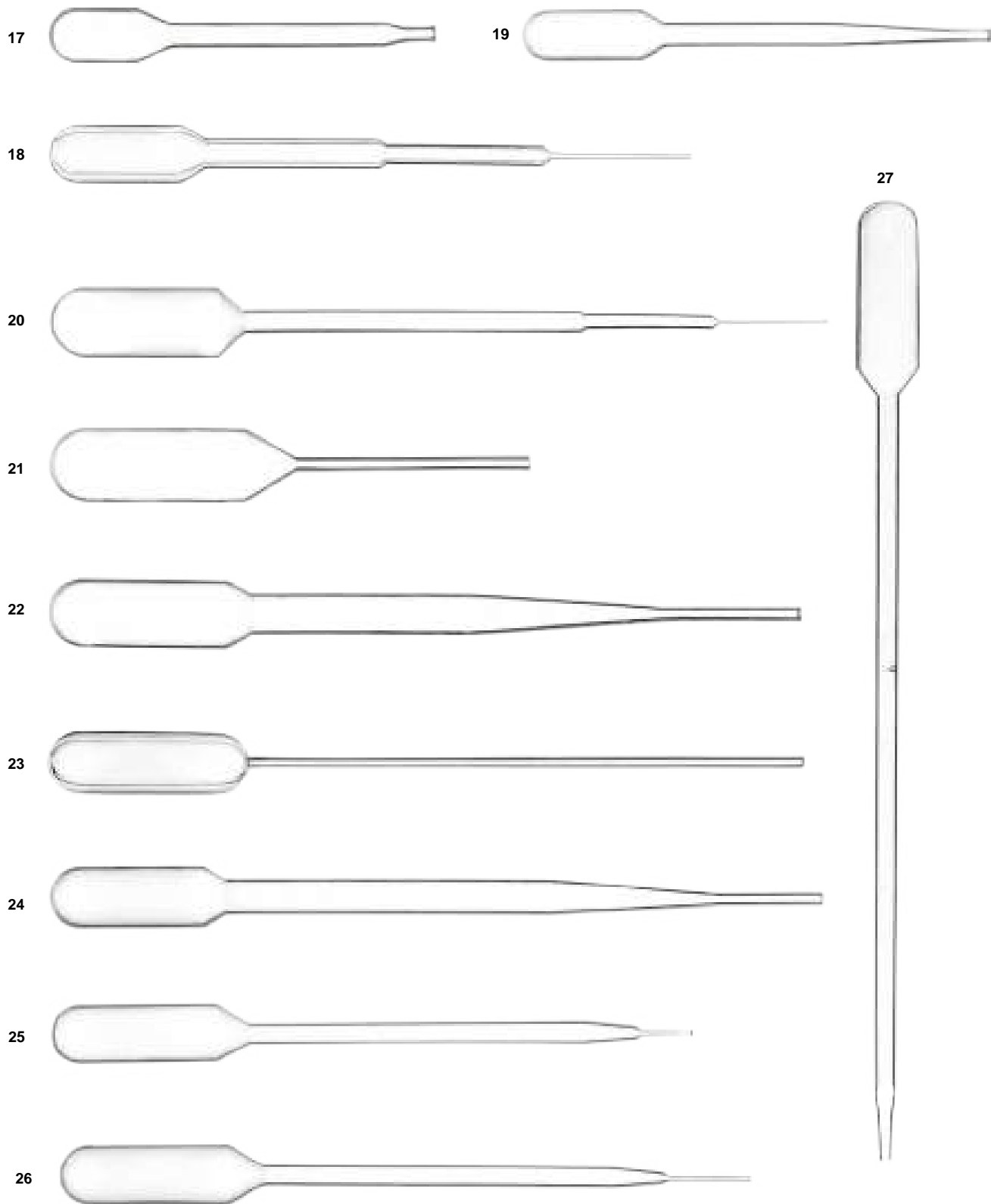
	Product Code	Length	Overall Vol(ml)	Drops/ml	Sterile	Packing
11	PLAC4320X3007A	70.5	0.5	15	15	1000pcs/dispenser box, 10x1000pcs/carton
12	PLAC4320X2801A	69	1.0	19	19	1000pcs/dispenser box, 10x1000pcs/carton
13	PLAC4320X0901A	65	1.2	-	-	1000pcs/dispenser box, 10x1000pcs/carton
	PLAC4320X0902A	65	1.2	-	E.O	Individual Flow-pack, 10x100pcs/dispenser box/carton
	PLAC4320X0904A	65	1.2	-	E.O	5pcs/flow pack, 400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X0905A	65	1.2	-	E.O	20pcs/polybag, 400pcs/dispenser box, 10x400pcs/carton
14	PLAC4320X2001A	131	1	-	-	1000pcs/dispenser box, 10x1000pcs/carton
15	PLAC4320X2101A	124	0.8	-	-	1000pcs/dispenser box, 10x1000pcs/carton
16	PLAC4320X2701A	51	1.3	46	-	1000pcs/dispenser box, 10x1000pcs/carton
	PLAC4320X2702A	51	1.3	46	E.O	Individual Flow-pack, 10x100pcs/dispenser box/carton
	PLAC4320X2704A	51	1.3	46	E.O	5pcs/flow pack, 400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X2705A	51	1.3	46	E.O	20pcs/polybag, 800pcs/dispenser box, 10x800pcs/carton



Without Graduation

	Product Code	Length (mm)	Overall Vol(ml)	Drops/ml	Sterile	Packing
17	PLAC4320X2907A	70	1.6	26	-	1000pcs/dispenser box, 10x1000pcs/carton
18	PLAC4320X2401A	104	1.5	50	-	1000pcs/dispenser box, 10x1000pcs/carton
	PLAC4320X2402A	104	1.5	50	E.O	Individual flow-pack, 100pcs/dispenser box, 10x100pcs/carton
	PLAC4320X2403A	104	1.5	50	E.O	Individual peel-pack, 100pcs/dispenser box, 10x100pcs/carton
	PLAC4320X2404A	104	1.5	50	E.O	5pcs/flow pack, 200pcs/dispenser box, 10x200pcs/carton
	PLAC4320X2405A	104	1.5	50	E.O	20pcs/polybag, 400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X2406A	104	1.5	50	E.O	5pcs/peel pack, 400pcs/dispenser box, 10x400pcs/carton
19	PLAC4320X0701A	87	2	-	-	1000pcs/dispenser box, 10x1000pcs/carton
	PLAC4320X0702A	87	2	-	E.O	Individual flow-pack, 100pcs/dispenser box, 10x100pcs/carton
	PLAC4320X0703A	87	2	-	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0704A	87	2	-	E.O	5pcs/peel pack, 400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X0705A	87	2	-	E.O	20pcs/polybag, 400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X2501A	153	3.3	50	-	500pcs/dispenser box x 10 /carton
20	PLAC4320X2502A	153	3.3	50	E.O	Individual flow-pack, 100pcs/dispenser box, 10x100pcs/carton
	PLAC4320X2503A	153	3.3	50	E.O	Individual peel-pack, 100pcs/dispenser box, 10x100pcs/carton
	PLAC4320X2504A	153	3.3	50	E.O	5pcs/flow pack, 400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X2505A	153	3.3	50	E.O	20pcs/polybag, 400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X2506A	153	3.3	50	E.O	5pcs/peel pack, 400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X0801A	85	4	-	-	10x500pcs/dispenser box /carton
21	PLAC4320X0802A	85	4	-	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X0803A	85	4	-	E.O	Individual peel pack, 10x100pcs/dispenser box /carton
	PLAC4320X0804A	85	4	-	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
	PLAC4320X0805A	85	4	-	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X1301A	130	4	25	-	10x500pcs/dispenser box /carton
	PLAC4320X1302A	130	4	25	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
22	PLAC4320X1303A	130	4	25	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X1304A	130	4	25	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X1305A	130	4	25	E.O	20pcs/polybag, 10x400pcs/dispenser box/carton
	PLAC4320X1306A	130	4	25	E.O	5pcs/peel pack, 10x400pcs/inner box/carton
	PLAC4320X1201A	155	4.5	25	-	10x500pcs/dispenser box /carton
	PLAC4320X1202A	155	4.5	25	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
23	PLAC4320X1203A	155	4.5	25	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X1204A	155	4.5	25	E.O	5pcs/flow pack, 10x400pcs/dispenser box/carton
	PLAC4320X1205A	155	4.5	25	E.O	20pcs/polybag, 10x400pcs/dispenser box/carton
	PLAC4320X1206A	155	4.5	25	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
	PLAC4320X1401A	154	5	23	-	10x500pcs/dispenser box /carton
	PLAC4320X1402A	154	5	23	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
24	PLAC4320X1403A	154	5	23	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X1404A	154	5	23	E.O	5pcs/flow pack, 10x400pcs/dispenser box/carton
	PLAC4320X1405A	154	5	23	E.O	20pcs/polybag, 10x400pcs/dispenser box/carton
	PLAC4320X1406A	154	5	23	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
	PLAC4320X2201A	149	5.8	55	-	10x500pcs/dispenser box /carton
	PLAC4320X2202A	149	5.8	55	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
25	PLAC4320X2203A	149	5.8	55	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X2204A	149	5.8	55	E.O	5pcs/flow pack, 200pcs/dispenser box, 10x200pcs/carton
	PLAC4320X2205A	149	5.8	55	E.O	20pcs/polybag, 10x200pcs/dispenser box/carton
	PLAC4320X2206A	149	5.8	55	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
	PLAC4320X2601A	156	5.8	50	-	10x500pcs/dispenser box /carton
	PLAC4320X2602A	156	5.8	50	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
26	PLAC4320X2603A	156	5.8	50	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X2604A	156	5.8	50	E.O	5pcs/flow pack, 10x400pcs/dispenser box/carton
	PLAC4320X2605A	156	5.8	50	E.O	20pcs/polybag, 10x400pcs/dispenser box/carton
	PLAC4320X2606A	156	5.8	50	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
	PLAC4320X1801A	226	6	-	-	10x500pcs/dispenser box /carton
	PLAC4320X1802A	226	6	-	E.O	Individual flow-pack, 10x100pcs/dispenser box/carton
27	PLAC4320X1804A	226	6	-	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X1805A	226	6	-	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton





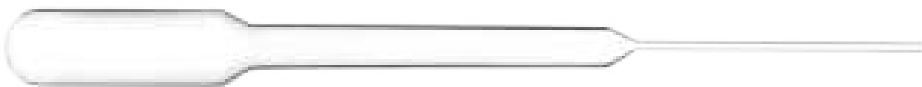
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	Product Code	Length (mm)	Overall Vol(ml)	Drops/ml	Sterile	Packing
28	PLAC4320X1701A	155	6.5	-	-	10x500pcs/dispenser box/carton
	PLAC4320X1702A	155	6.5	-	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X1703A	155	6.5	-	E.O	Individual peel-pack, 10x100pcs/dispenser box/carton
	PLAC4320X1704A	155	6.5	-	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X1705A	155	6.5	-	E.O	20pcs/polybag, 10x400pcs/dispenser box/carton
	PLAC4320X1706A	155	6.5	-	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
29	PLAC4320X1001A	156	7.5	20	-	10x500pcs/dispenser box /carton
	PLAC4320X1002A	156	7.5	20	E.O	Individual flow-pack, 10x100pcs/dispenser box/carton
	PLAC4320X1003A	156	7.5	20	E.O	Individual peel-pack, 10x100pcs/dispenser box /carton
	PLAC4320X1004A	156	7.5	20	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X1005A	156	7.5	20	E.O	20pcs/polybag, 10x400pcs/dispenser box/carton
	PLAC4320X1006A	156	7.5	20	E.O	5pcs/peel pack, 10x400pcs/dispenser box/carton
30	PLAC4320X1101A	152	8	20	-	10x500pcs/dispenser box /carton
	PLAC4320X1102A	152	8	20	E.O	Individual flow-pack, 10x100pcs/dispenser box/carton
	PLAC4320X1103A	152	8	20	E.O	Individual peel-pack, 10x100pcs/dispenser box/carton
	PLAC4320X1104A	152	8	20	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X1105A	152	8	20	E.O	20pcs/polybag, 10x400pcs/dispenser box /carton
	PLAC4320X1106A	152	8	20	E.O	5pcs/peel pack, 10x400pcs/dispenser box/carton
31	PLAC4320X2301A	147	8.7	45	-	400pcs/dispenser box, 10x400pcs/carton
	PLAC4320X2302A	147	8.7	45	E.O	Individual Flow-Pack, 100pcs/dispenser box, 10x100pcs/carton
	PLAC4320X2303A	147	8.7	45	E.O	Individual peel-pack,100pcs/dispenser box, 10x100pcs/carton
	PLAC4320X2304A	147	8.7	45	E.O	5pcs/flow pack, 200pcs/dispenser box, 10x200pcs/carton
	PLAC4320X2305A	147	8.7	45	E.O	20pcs/polybag, 200pcs/dispenser box, 10x200pcs/carton
	PLAC4320X2306A	147	8.7	45	E.O	5pcs/peel pack, 400pcs/dispenser box, 10x400pcs/carton
32	PLAC4320X1501A	137	9	-	-	10x500pcs/dispenser box /carton
	PLAC4320X1502A	137	9	-	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X1503A	137	9	-	E.O	Individual peel-pack, 10x100pcs/dispenser box/carton
	PLAC4320X1504A	137	9	-	E.O	5pcs/flow pack, 10x400pcs/dispenser box /carton
	PLAC4320X1505A	137	9	-	E.O	20pcs/polybag, 10x400pcs/dispenser box/carton
	PLAC4320X1506A	137	9	-	E.O	5pcs/peel pack, 10x400pcs/dispenser box /carton
33	PLAC4320X1601A	155	15	19	-	10x500pcs/dispenser box /carton
	PLAC4320X1602A	155	15	19	E.O	Individual flow-pack, 10x100pcs/dispenser box /carton
	PLAC4320X1603A	155	15	19	E.O	Individual peel-pack, 200pcs/dispenser box, 10x200pcs/carton
	PLAC4320X1604A	155	15	19	E.O	5pcs/flow pack, 200pcs/dispenser box, 10x200pcs/carton
	PLAC4320X1605A	155	15	19	E.O	20pcs/polybag, 200pcs/dispenser box, 10x200pcs/carton
	PLAC4320X1901A	300	23	-	-	100pcs/polybag, 10x100pcs/carton
34	PLAC4320X1902A	300	23	-	E.O	Individual pack, 1pc/polybag, 600pcs/carton
	PLAC4320X1904A	300	23	-	E.O	5pcs/flow pack, 800pcs/carton
	PLAC4320X1905A	300	23	-	E.O	20pcs/polybag, 40x20pcs/carton
	PLAC4320X3201A	165			-	10x100pcs/dispenser box /carton

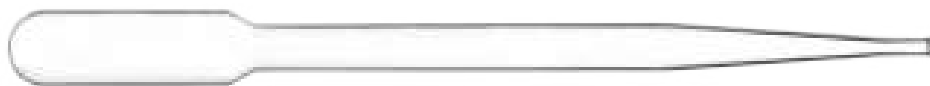




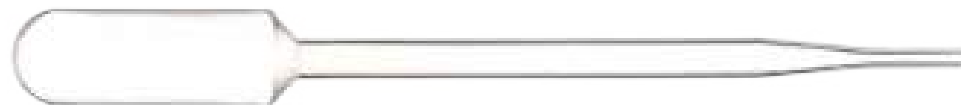
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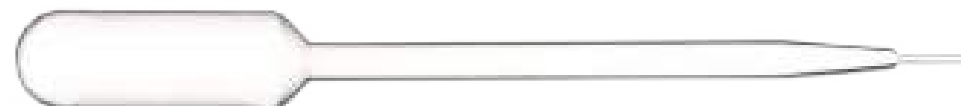
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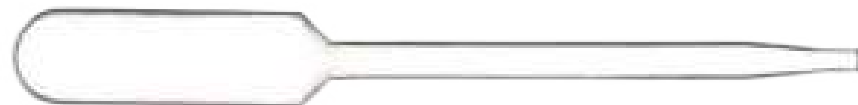
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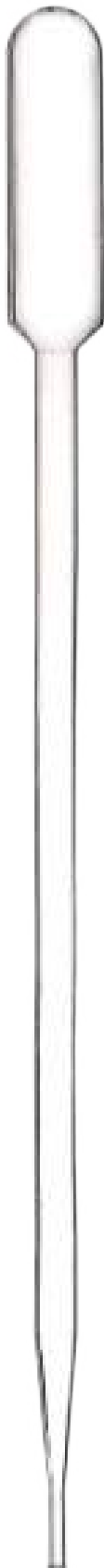
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Collection Plates

GVS Collection Plates are molded from high-purity polypropylene (PP), which is highly stable. The outstanding properties are excellent solvent resistance (including DMSO, ethanol and isopropanol), thermally resistance and low residual. The collection plates are international ANSI/ SBS standards-compliant design with alphabetical marks.



Features

- A Withstand high speed centrifugal force 3000-4000 g
- A Tolerant to autoclave at 121 °C for 20 min
- A 4.6/3.5/2.2/2.0/1.6/1.0 mL deep well plates and 0.4/0.36 mL microplates are available

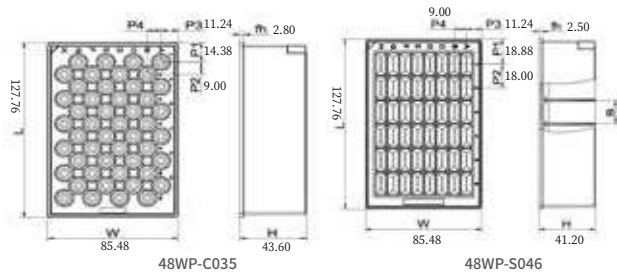
Ordering information

Product Code	Description	Qty.
COLPLB96W020NA	96-Well Collection Plate, Round Well, 2.0 mL, U-bottom	24 Pcs/Box
COLPLB96W010A	96-Well Collection Plate, Round Well, 1.0 mL, U-bottom	24 Pcs/Box
COLPLB96W004A	96-Well Collection Plate, Round Well, 0.4 mL, U-bottom	10 Pcs/Box
COLPLB96W0036VA	96-Well Collection Plate, Round Well, 0.36 mL, V-bottom	10 Pcs/Box

Product Code	Description	Qty.
COLPLB48W046A	48-Well Collection Plate, Square Well, 4.6 mL, U-bottom	24 Pcs/Box
COLPLB96W022BNA	96-Well Collection Plate, Square Well, 2.2 mL, U-bottom	24 Pcs/Box
COLPLB96W022VNA	96-Well Collection Plate, Square Well, 2.2 mL, V-bottom	24 Pcs/Box
COLPLB96W0161A	96-Well Collection Plate, Square Well, 1.6 mL, U-bottom	30 Pcs/Box
COLPLB96W010NA	96-Well Collection Plate, Square Well, 1.0 mL, U-bottom	30 Pcs/Box
COLPLB384W240VA	384-Well collection plate, Square Well, 0.24 mL	10 Pcs/Box
COLPLB24W070VNA	24-Well Collection Plates, 7mL,V bottom	24/Pack
COLPLB24W1001A	24-Well Collection Plates, 10mL,U bottom	50/Pack

Note: For sterilized collection plates, please contact us.

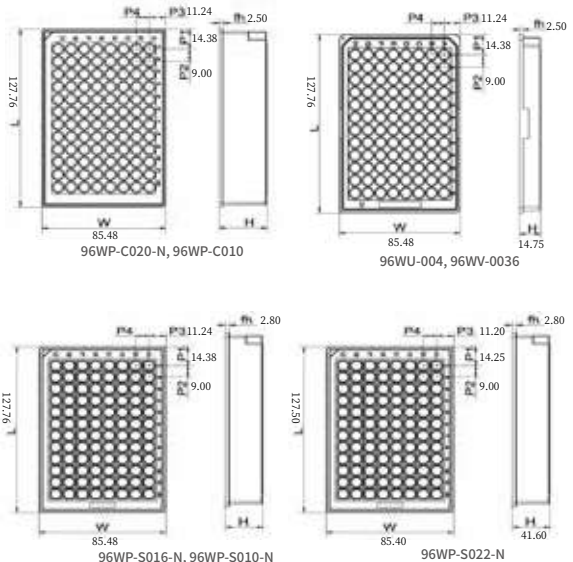
ALL DIMENSIONS IN MM



Note:

1.The length and width of round well plate of 96WP-C020-N and 96WP-C010 are the same, but the well height is 43.90 mm and 33.00 mm.

2.The length and width of square well plate of 96WP-S016-BN and 96WP-S010-N are the same, but the well height is 31.60 mm and 24.40 mm.



Silicone Sealing Mats



Ordering information

Product Code	Description	Qty.
COLPLSEALB96W20A	96-Well Round Capped Silicone Sealing Mats, for Sealing 96- Well Collection Plates (2.0 mL), Pierceable	10 Pcs/PK
COLPLSEALB96W10A	96-Well Round Capped Silicone Sealing Mats, for Sealing 96- Well Collection Plates (1.0/0.4/0.36 mL), Pierceable	10 Pcs/PK
COLPLSEALB96WSA	96-Well Square Capped Silicone Sealing Mats, for Sealing 96- Well Collection Plates (2.2/1.6/1.0 mL)	10 Pcs/PK
COLPLSEALB96WPA	96-Well Square Capped Silicone Sealing Mats, for Sealing 96- Well Collection Plates (2.2/1.6/1.0 mL), Pierceable	10 Pcs/PK
COLPLSEALB96WA	Adhesive Sealing Films, for Sealing Deep Well Plates	500 Pcs/PK

Reagent Reservoirs



GVS Reagent Reservoirs are available in 8-channel, 12-channel, 96-channel and 384-channel, free of DNase and RNase.

Ordering Information

Product Code	Description	Qty.
COLPLRB08C022WRA	8-Channel Reagent Reservoirs, 22 mL	10 Pcs/Box
COLPLRB12C015WRA	12-Channel Reagent Reservoirs, 15 mL	10 Pcs/Box
COLPLRB96C195WRA	96-Channel Reagent Reservoirs, 195mL	10 Pcs/Box

Sterile Sample Bags

Meet all your collection, storage and transport needs, ensuring the sterility and integrity of your samples for testing

GVS sterile sampling bag are the ideal choice for collecting, storing, and transporting solid, semi-solid and liquid samples. This product is made from FDA-approved pure polyethylene material, with an average thickness greater than similar products on the market, ensuring higher strength and durability.

GVS sterile sampling bags are produced using extruded polyethylene film tubes, eliminating the need for heat sealing on the sides, with only a tear-off seal at the top and a heat-sealed bottom, thus removing potential hazards associated with side heat sealing. Additionally, the absence of side heat sealing allows users to easily open the bag, facilitating the insertion of various samples.

Sterility assured

GVS sterile sampling bags are produced using extruded polyethylene film tubes with a temperature range of 220°C to 240°C ensuring that the interior of the finished product reaches a sterile state. Throughout the production process, these bags remain in a closed environment, preventing exposure to the outside, which further guarantees sterility until the moment the user opens the packaging.

To ensure product sterility, we conduct batch sampling of all raw materials and perform independent testing, including



assessments for aerobic and anaerobic bacteria, as well as various colony culture experiments. Only after confirming that the raw materials have undergone comprehensive sterility testing do we proceed to the processing stage. The finished products also undergo multiple stringent sterility testing procedures to ensure the quality and safety of the final product.



More advantages

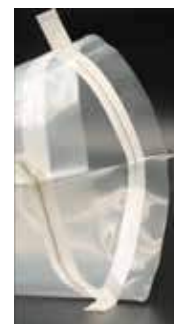
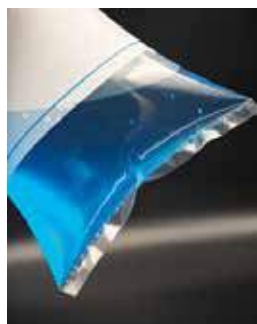
AEasy Tear Design Utilizes an easy tear structure for quick opening, ensuring user-friendly operation.

ASecure Bottom Seal The bottom is sealed using a thermal sealing process to guarantee reliable closure and prevent leakage of contents.

ASmall Handle Design Allows for quick opening while maintaining the maximum opening angle for easy sample insertion.

ADiverse Options Offers various sizes and sealing solutions to accommodate different sampling needs

ATransparent and Marking Options Available in transparent bags or versions with writable labels for easy sample observation and information recording.



Product Application

- ALaboratory
- AMedical industry
- AEnvironment detection
- AEvidence collection
- AFood industry
- AAgriculture
- ALivestock farming
- ADaily chemical industry

Aseptic sampling bags are specialized tools designed for the collection, storage, and transportation of biological samples. They are widely used in various fields, including laboratories, healthcare, food, daily chemicals, agriculture, environmental monitoring, and industry, their main features include excellent sterility and sealing properties, ensuring that cross-contamination and sample degradation are avoided during the collection and transfer process.

Ordering information

Product Number	Size(mm)	material(μm)	capacity(ml/oz)	packaging
Closed with 2 round wires, transparent, without writing area.			round wire _____ round wire _____	
SBL127076RR70TA	127x76	PE70	60(2)	Cs/1000(2X500)
SBL178076RR70TA	178 x76	PE70	118(4)	Cs/1000(2x500)
SBL190114RR70TA	190x114	PE70	350(12)	Cs/1000(2X500)
SBL229114RR70TA	229x114	PE70	530(18)	Cs/1000(2X500)
SBL304114RR70TA	304x114	PE70	800(27)	Cs/1000(2X500)
SBL381114RR70TA	381 x114	PE70	1050(36)	Cs/1000(2X500)
SBL229140RR90TA	229x140	PE90	710(24)	Cs/1000(2X500)
SBL381140RR90TA	381 x140	PE90	1250(42)	Cs/1000(2x500)
SBL300180RR100TA	300x180	PE100	1650(55)	Cs/1000(4X250)
Closed with 2 round wires, with writing area.			round wire _____ round wire _____	
SBL127076RR70WA	127x76	PE70	60(2)	Cs/1000(2X500)
SBL178076RR70WA	178x76	PE70	118(4)	Cs/1000(2X500)
SBL190114RR70WA	190x114	PE70	350(12)	Cs/1000(2x500)
SBL229114RR70WA	229x114	PE70	530(18)	Cs/1000(2x500)
SBL304114RR70WA	304x114	PE70	800(27)	Cs/1000(2x500)
SBL381114RR70WA	381 x114	PE70	1050(36)	Cs/1000(2X500)
SBL229140RR90WA	229x140	PE90	710(24)	Cs/1000(2X500)
SBL381140RR90WA	381 x140	PE90	1250(42)	Cs/1000(2X500)
SBL300180RR100WA	300x180	PE100	1650(55)	Cs/1000(4X250)
Closed with 1 round & 1 flat wire, with writing area			round wire _____ flat wire _____	
SBL229114RF70WA	229x114	PE70	530(18)	Cs/1000(2X500)
SBL229140RF90WA	229x140	PE90	710(24)	Cs/1000(2X500)
SBL300180RF100WA	300x180	PE100	1650(55)	Cs/1000(4X250)
SBL254254RF100WA	254x254	PE100	1780(60)	Cs/1000(4X250)
SBL356254RF100WA	356x254	PE100	3000(100)	Cs/1000(4X250)

Ordering information

Product Number	Size(mm)	material(μm)	capacity(ml/oz)	packaging
Closed with 1 round & 1 flat wire, transparent, without writing area.			round wire flat wire	
SBL229114RF70TA	229x114	PE70	530(18)	Cs/1000(2X500)
SBL304114RF70TA	304x114	PE70	800(27)	Cs/1000(2X500)
SBL381114RF70TA	381 x114	PE70	1050(36)	Cs/1000(2X500)
SBL229140RF90TA	229x140	PE90	710(24)	Cs/1000(2X500)
SBL381140RF90TA	381x140	PE90	1250(42)	Cs/1000(2X500)
SBL300180RF100TA	300x180	PE100	1650(55)	Cs/1000(4X250)
SBL254254RF100TA	254x254	PE100	1780(60)	Cs/1000(4X250)
SBL305254RF100TA	305x254	PE100	2250(75)	Cs/1000(4X250)
SBL356254RF100TA	356x254	PE100	3000(100)	Cs/1000(4X250)
SBL381254RF100TA	381 x254	PE100	3800(130)	Cs/500(2X250)
SBL406305RF100TA	405x305	PE100	5000(170)	Cs/500(5X100)
SBL457305RF100TA	457x305	PE100	6000(200)	Cs/500(5X100)
SBL508305RF100TA	508x305	PE100	6800(230)	Cs/500(5X100)
SBL508381RF100TA	508x381	PE100	9800(330)	Cs/200(2X100)
SBL610381RF100TA	610x381	PE100	13000(440)	Cs/200(2X100)



GVS can also meet customers' personalized needs in specific applications

- Customized sizes and specifications:** Customers can specify the size, thickness of the bags to suit specific uses.
- Material selection:** Options for different materials, such as polyethylene and nylon, are available to meet requirements for breathability and chemical resistance.
- Printing logos and designs:** Company logos and relevant information can be printed on sterile sampling bags to enhance brand image and recognition.
- Compliance with standards:** Customized products will comply with industry standards, ensuring the sterility of materials and production processes.
- Personalized service:** Consulting and sample confirmation services are provided to ensure the final product meets usage requirements.

Full-page filter Sterile Sample Bags



Features

- The outer layer is a reinforced multi-layer composite film
- The middle layer is a full-width filter membrane made of pure polyethylene
- Filter membrane pore size: less than 280 microns.
- Can be used with homogenizers
- Sampling, homogenization, and filtration completed in one step.

Full-page filter Sterile Sample Bags Ordering information

Product Number	Size(mm)	material(μm)	capacity(ml/oz)	Print	packaging
Closed with 2 round wires, transparent, without writing area.			round wire _____ round wire _____		
SBLM230150RR100TA	230x150	NY/PE100	700(24)	NO	Cs/1000(2X500)
SBLM300190RR100TA	300x190	NY/PE100	1600(55)	NO	Cs/1000(4X250)
SBLM380190RR100TA	380x190	NY/PE100	2000(69)	NO	Cs/1000(2X250)
SBLM380380RF100TA	380x380	NY/PE100	4000(138)	NO	Cs/1000(5X100)

Stand-up Sterile Sample Bags



Features

- A Outer layer reinforced multi-layer composite membrane, offering superior durability and protection performance.
- A Stand-up design, making sample collection more efficient.
- A K-shaped bottom seal, enhancing standing support and ensuring safety during sampling and storage.
- A Facilitates better fluid sampling, resulting in smoother operation.
- A Writable label area for records, convenient for subsequent data management and tracking.

Ordering information

Product Number	Size(mm)	material(μm)	capacity(ml/oz)	Print	packaging
Closed with 2 round wires, transparent, without writing area.			round wire _____ round wire _____		
SBLU185075RR75TA	185x75	NY/PE75	120(4)	NO	Cs/1000 (2x500)
SBLU185095RR75TA	185x95	NY/PE75	207(7)	NO	Cs/1000 (2x500)
SBLU230115RR75TA	230x115	NY/PE75	530(18)	NO	Cs/1000 (2x500)
SBLU230150RR90TA	230x150	NY/PE90	700(24)	NO	Cs/1000(2X500)
SBLU255160RR90TA	255x160	NY/PE90	1050(36)	NO	Cs/1000(4X250)
SBLU300190RR100TA	300x190	NY/PE100	1600(55)	NO	Cs/1000(4X250)
SBLU380150RR100TA	380x150	NY/PE90	1200(42)	NO	Cs/1000(4X250)
SBLU380190RR100TA	380x190	NY/PE100	2000(69)	NO	Cs/500(2X250)
SBLU380380RF100TA	380x380	NY/PE100	4000(138)	NO	Cs/500 (2x250)
Closed with 2 round wires, transparent, with writing area.			round wire _____ round wire _____		
SBLU185075RR75WA	185x75	NY/PE75	120(4)	Yes	Cs/1000 (2x500)
SBLU185095RR75WA	185x95	NY/PE75	207(7)	Yes	Cs/1000 (2x500)
SBLU230115RR75WA	230x115	NY/PE75	530(18)	Yes	Cs/1000 (2x500)
SBLU230150RR90WA	230x150	NY/PE90	700(24)	Yes	Cs/1000(2X500)
SBLU255160RR90WA	255x160	NY/PE90	1050(36)	Yes	Cs/1000(4X250)
SBLU300190RR100WA	300x190	NY/PE100	1600(55)	Yes	Cs/1000(4X250)
SBLU380150RR100WA	380x150	NY/PE90	1200(42)	Yes	Cs/1000(4X250)
SBLU380190RR100WA	380x190	NY/PE100	2000(69)	Yes	Cs/500(2X250)
SBLU380380RF100WA	380x380	NY/PE100	4000(138)	Yes	Cs/500 (2x250)

Blender Bags

Suitable for almost all homogenizers available on the market



Features

Aseptic Design

Subjected to strict aseptic processing to ensure no contamination occurs during sample collection and handling.

Transparent Structure

Typically made from transparent materials, facilitating observation of sample status and monitoring the degree of homogenization.

Vacuum Packaging

Utilizes vacuum packaging to extend shelf life, ensuring the stability and effectiveness of samples.

Durable Materials

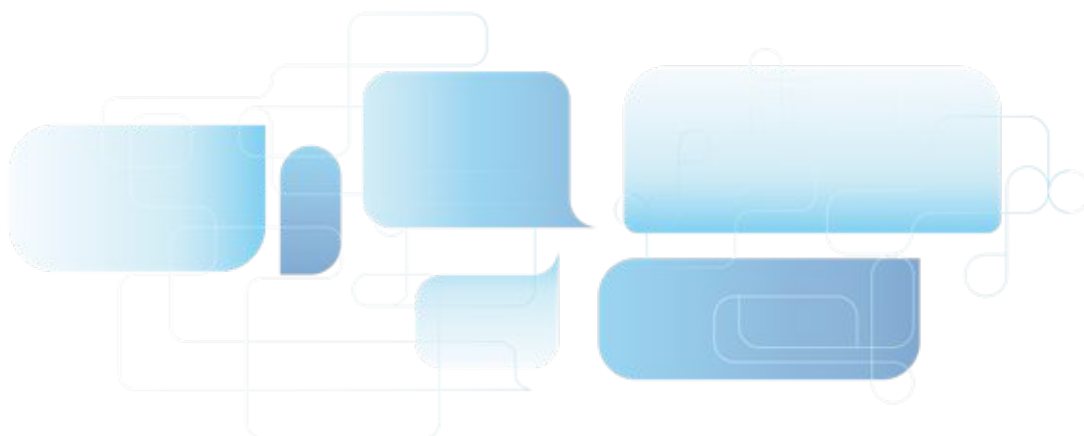
Made from high-toughness and pressure-resistant materials, capable of withstanding the impact and pressure during the homogenization process.

Filtration Function

Offers multiple filtration models to reject impurities, making detection simpler.

Specific Capacities

Available in various capacities options to meet different experimental and processing needs.



Lateral filter Blender bags



Full-page filter Blender bags



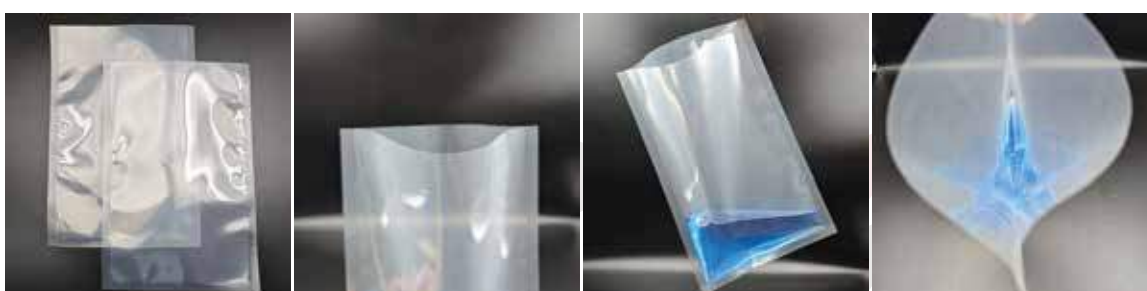
Non-filter Blender bags



Full-page filter Blender bags



Reinforced Blender bags



Ordering information

Product Number	Size(mm)	material(μm)	capacity(ml/oz)	Print	packaging
Lateral filter Blender bags (non woven fabric filter)					
BBLFTN30019075TA	300x190	NY/PE75	400	NO	Cs/500(10X50)
BBLFTN30019075WA	300x190	NY/PE75	400	YES	Cs/500(10X50)
Non-filter Blender bags					
BBLT30018070TA	300x180	PE70	400	NO	Cs/1000(10X100)
BBLT300180100TA	300x180	PE100	400	NO	Cs/500(100X5)
BBLT300180100WA	300x180	PE100	400	YES	Cs/500(100X5)
BBLT300180120TA	300x180	PE120	400	NO	Cs/500(100X5)
BBLT320175110TA	320x175	PE110	400	NO	Cs/1000(4X250)
BBLT380254100TA	380x254	PE100	2000	NO	Cs/500(10X50)
BBLT500380110TA	500x380	PE110	3200	NO	Cs/400(2X200)
BBLT560380110TA	560x380	PE110	3750	NO	Cs/400(2x200)
Full-page filter Blender bags (PE filter membrane)					
BBLFMP30019075WA	300x190	NY/PE75	400	YES	Cs/500(10X50)
on demand	600x380	NY/PE75	3750	NO	Cs/100(10X10)
Reinforced Blender bags					
BBLS30019075TA	300x190	NY/PE75	400	NO	Cs/500(10x50)
BBLS30019075WA	300x190	NY/PE75	400	YES	Cs/500(10X50)



Single Zipper Standing Sterile Sampling Bag/Homogenizer Bag



Features

- Asterile Design:** Each sampling bag undergoes strict sterilization to ensure a microbe-free sampling process.
- Sealable Structure with Pressure Strip:** The pressure strip design ensures a secure seal, preventing sample leakage and guaranteeing safe transportation.
- Upright Design:** The upright structure is stable, making it convenient for sampling, mixing, and weighing, thus enhancing laboratory efficiency.
- Excellent Homogenization Performance:** Ample space ensures thorough mixing of samples, making it suitable for various types of samples.
- Wide Applicability:** Suitable for multiple fields, including food, beverages, biotechnology and environmental monitoring.

Single Zipper Standing Sterile Sampling Bag/Homogenizer Bag

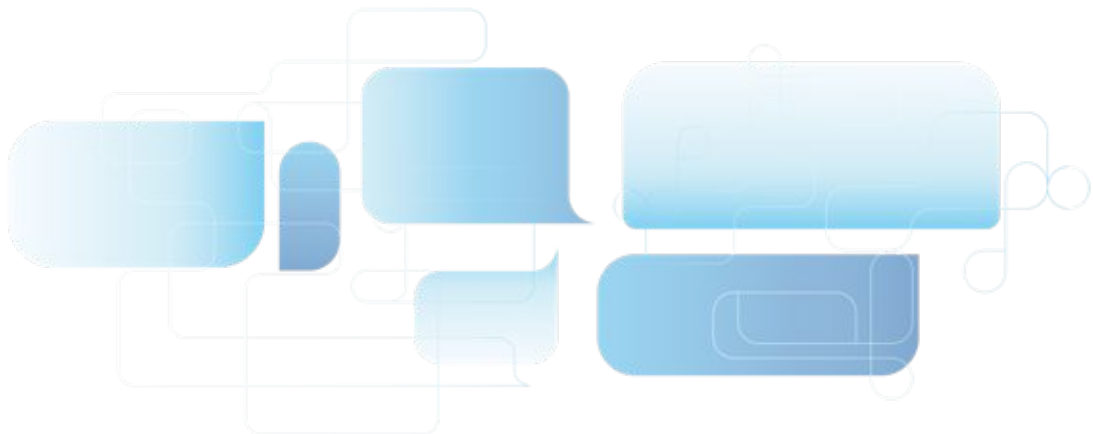
Product Number	Size(mm)	material(μm)	capacity(ml/oz)	packaging
SBLZSU2022WA	220×200	NYPE95	400	Cs/1000 (10×100)
SBLZSU2027WA	270×200	NYPE95	2000	Cs/1000 (10×100)
SBLZSU2032WA	320×200	NYPE95	3750	Cs/1000 (10×100)
SBLZSU2532WA	320×250	NYPE95	400	Cs/500 (10×50)
SBLZSU2540WA	400×250	NYPE95	400	Cs/500 (10×50)
SBLZSU3040WA	400×300	NYPE95	5500	Cs/500 (10×50)
SBLZSU3540WA	400×350	NYPE95	6500	Cs/500 (10×50)

Double Zipper Leak-Proof Standing Sterile Sampling Bag/Homogenizer Bag



Features

- ADouble seal leak prevention: Dual protection completely eliminates the risk of sample leakage
- AStrict sterilization: Ensures that the risk of microbial contamination minimizes
- AEasy operation: Vertical design facilitates sampling, mixing, and weighing
- AExcellent homogenization: Ample space ensures thorough mixing of samples
- AWide applicability; Suitable for various fields including food, beverages, and biotechnology.



Custom Sterile Liquid Sample Bags

1.

Sterile liquid sampling bags are high-performance bags designed for the sterile collection transportation, and storage of liquid samples.

2.

Their upright structure and unique twist-cap design ensure the safety and convenience of the samples.

3.

The top is equipped with a twist-cap of optional diameter allowing customers to choose different sizes according to their needs to fit various sampling tools.

4.

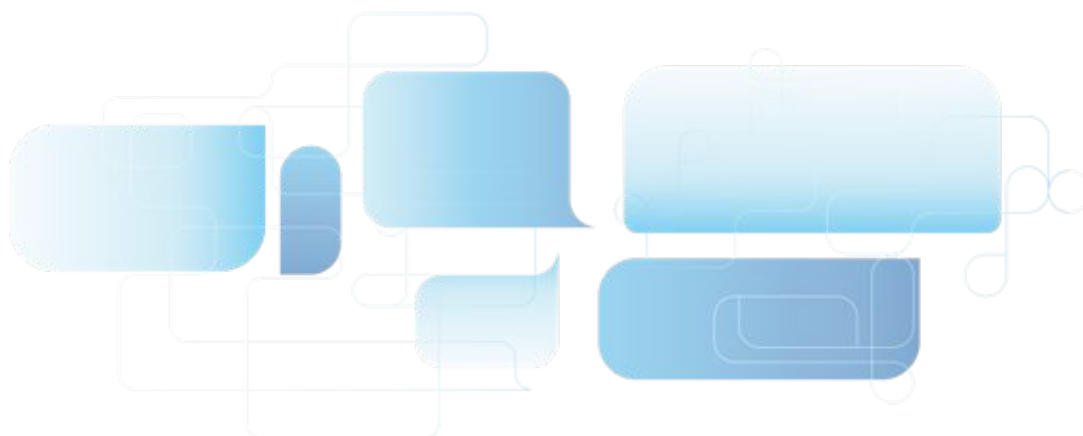
The bag body can be customized with personalized printing according to customer requirements, including company logos and product information, to enhance brand image.

5.

High-energy electron accelerator irradiation technology is used for sterilization, ensuring a reliable and long-lasting sterile state, effectively eliminating bacteria and microorganisms.

6.

This product is widely used in medical testing, environmental monitoring, the food industry, and other fields, making it an ideal choice for laboratory and on-site sampling.



Other related custom products



Sterile sampling bags with dry sponge



Sterile sampling bags with compartments for capacity



High-temperature resistant sterilization bags



Cord blood and placenta cell storage bags



Autoclave bag



Sterile sampling bags with spoons



Outer packaging bags for petri dishes



Specimen bags



FLAME PETTE

Liquid Handling

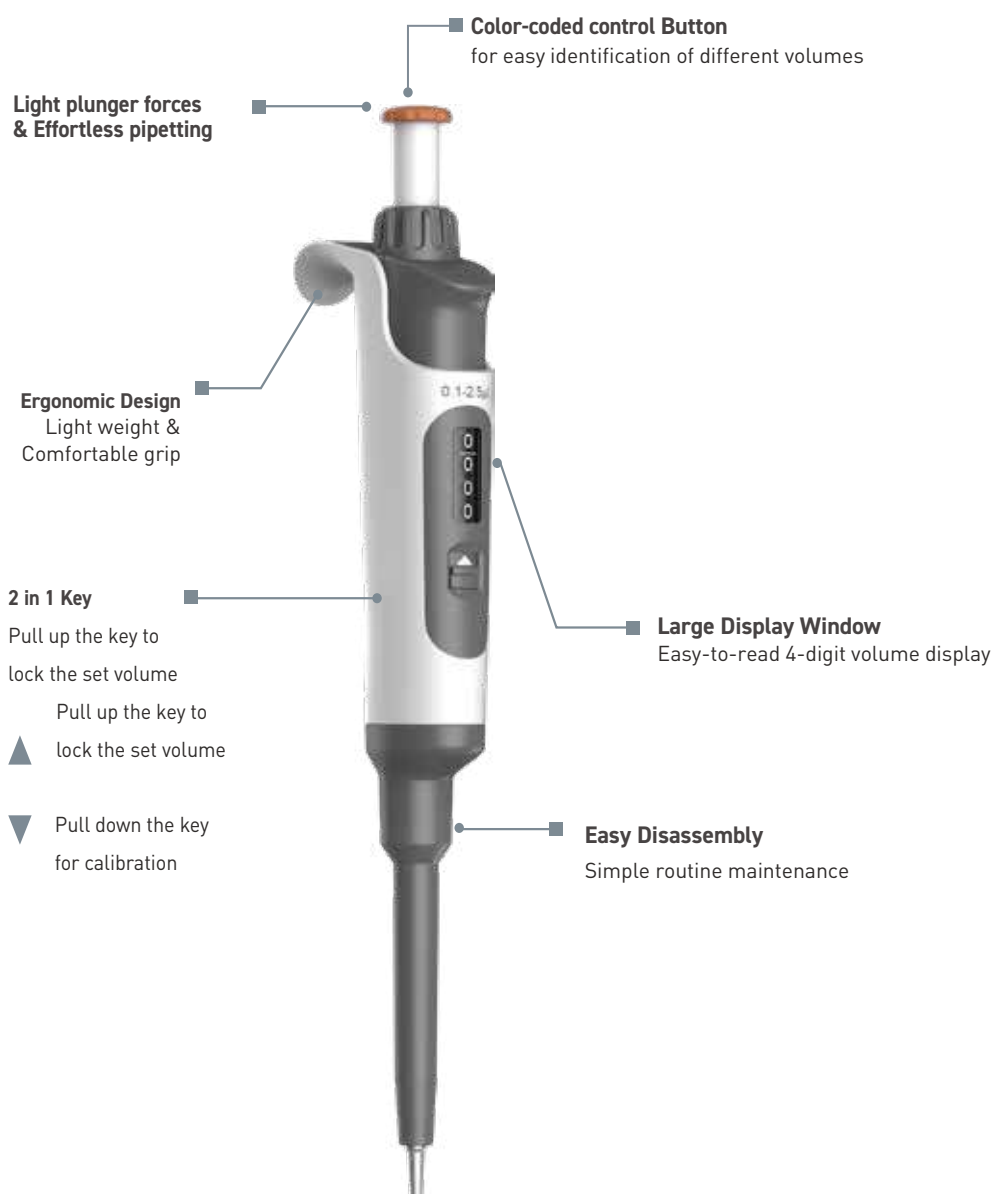
Product collection



FLAME Pette

FLAME Pette

Fully Autoclavable Adjustable Volume Pipette



Features

- A Wide volume range of 0.1 μ L to 10mL
- A Ergonomic design allows comfortable grip and fatigue-free pipetting
- A 4-digit volume display offers high display accuracy of up to 0.002 μ L
- A Color-coded control button allows for easy identification of different volume ranges
- A Volume lock to prevent accidental changes during use
- A Each pipette is calibrated in accordance with ISO8655 and shipped with individual test certificates
- A Easy calibration without using any accessory tools
- A Broadly compatible with various pipette tips on the market
- A Easy to dismantle and maintain
- A The centrally positioned view window ensures effortless volume reading and adjustment, providing convenience for both left- and right-handed users.
- A Constructed with premium materials, the pipettes are fully autoclavable without disassembly, UV sterilizable, and highly resistant to chemical corrosion

Liquid Handling

The GVS new generation fully autoclavable mechanical pipette has the best ergonomic design and ultralight weight. It has been designed keeping in mind the human form and human factors to offer smooth and effortless ergonomic pipetting experience.



Ordering information

Product Code	Volume range	Increment	Test voµLume	Systematic error (Inaccuracy)		Random error (Imprecision)		Color
FLPFGFAS101A	0.1-2.5µL	0.002µL	0.25µL	12.00%	±0.03µL	6.00%	+0.015µL	Brown
			1.25µL	2.50%	±0.031µL	1.50%	+0.019µL	
			2.5µL	1.40%	±0.035µL	0.70%	+0.018µL	
FLPFGFAS102A	0.5-10µL	0.01µL	1µL	2.50%	±0.025µL	1.80%	+0.018µL	Orange
			5µL	1.50%	±0.075µL	0.80%	±0.04µL	
			10µL	1.00%	±0.1µL	0.40%	±0.04µL	
FLPFGFAS103A	2-20µL	0.02µL	2µL	5.00%	±0.1µL	1.50%	±0.03µL	Purple
			10µL	1.20%	±0.12µL	0.60%	±0.06µL	
			20µL	1.00%	±0.2µL	0.30%	+0.06µL	
FLPFGFAS104A	5-50µL	0.05µL	5µL	2.00%	+0.1µL	2.00%	+0.1µL	Green
			25µL	0.90%	±0.225µL	0.60%	+0.15µL	
			50µL	0.60%	+0.30µL	0.30%	±0.15µL	
FLPFGFAS105A	10-100µL	0.1µL	10µL	3.00%	+0.3µL	1.00%	+0.1µL	Dark blue
			50µL	1.00%	+0.5µL	0.30%	+0.15µL	
			100µL	0.80%	+0.8µL	0.20%	+0.2µL	
FLPFGFAS106A	20-200µL	0.2µL	20µL	2.50%	+0.5µL	0.70%	+0.14µL	Blue
			100µL	1.00%	±1.0µL	0.30%	+0.3µL	
			200µL	0.60%	±1.2µL	0.20%	±0.4µL	
FLPFGFAS107A	100-1000µL	1µL	100µL	3.00%	±3.0µL	0.60%	±0.6µL	Red
			500µL	1.00%	±5.0µL	0.20%	±1.0µL	
			1000µL	0.60%	±6.0µL	0.20%	±2.0µL	
FLPFGFAS108A	500-5000µL	5µL	1000µL	2.40%	±0.012mL	0.60%	±0.003mL	Yellow
			2500µL	1.20%	±0.03mL	0.25%	±0.006mL	
			5000µL	0.60%	±0.03mL	0.15%	±0.008mL	
FLPFGFAS109A	1-10 mL	10µL	1mµL	3.00%	±0.03mL	0.60%	±0.006mL	Grey
			5mµL	0.80%	±0.04mL	0.20%	+0.01mL	
			10mµL	0.60%	+0.06mL	0.15%	+0.015mL	

FLAME Pette

Single-Channel Adjustable Volume Pipette



Features

- A Ergonomic design provides good hand grip, and combined with ultra-light weight offers fatigue-free pipetting
- A Low operating force required for control button avoids repetitive strain injuries
- A Ergonomically positioned ejector button with low plunger force for easy tip ejection
- A Dispensing volume range of 0.1ul-10ml
- A Color codes on top to easily identify different volume ranges
- A Large 4-digit volume display offers high display accuracy of up to 0.002ul
- A Centrally placed view window makes volume reading and adjustment easy for both left and right-handers
- A Elastic tip cone ensures perfect seal with tips and allows for easy tip removal
- A Each pipette is calibrated in accordance with ISO8655 and shipped with individual test certificates
- A Durable material offers excellent temperature and chemical resistance
- A The lower section can be autoclaved
- A Easy to dismantle, and maintain
- A Comes with tool for easy calibration



Ordering information

Product Code	Volume range	Increment	Maximum permissible systematic error (Inaccuracy)	Maximum permissible random error (Imprecision)	Color
FLPFGSAS301001A	0.1-2.0µL	0.002µL	2.50%	2.00%	Brown
FLPFGSAS301002A	0.5-10µL	0.01µL	1.00%	0.80%	Orange
FLPFGSAS301003A	2-20µL	0.02µL	0.90%	0.40%	Purple
FLPFGSAS301004A	5-50µL	0.05µL	0.60%	0.30%	Green
FLPFGSAS301005A	10-100µL	0.1µL	0.80%	0.15%	Dark Blue
FLPFGSAS301006A	20-200µL	0.2µL	0.60%	0.15%	Blue
FLPFGSAS301007A	100-1000µL	1µL	0.60%	0.20%	Red
FLPFGSAS301008A	1000-5000µL	5µL	0.60%	0.15%	Yellow
FLPFGSAS301009A	1-10mL	10µL	0.60%	0.20%	Grey

Pipette Stand



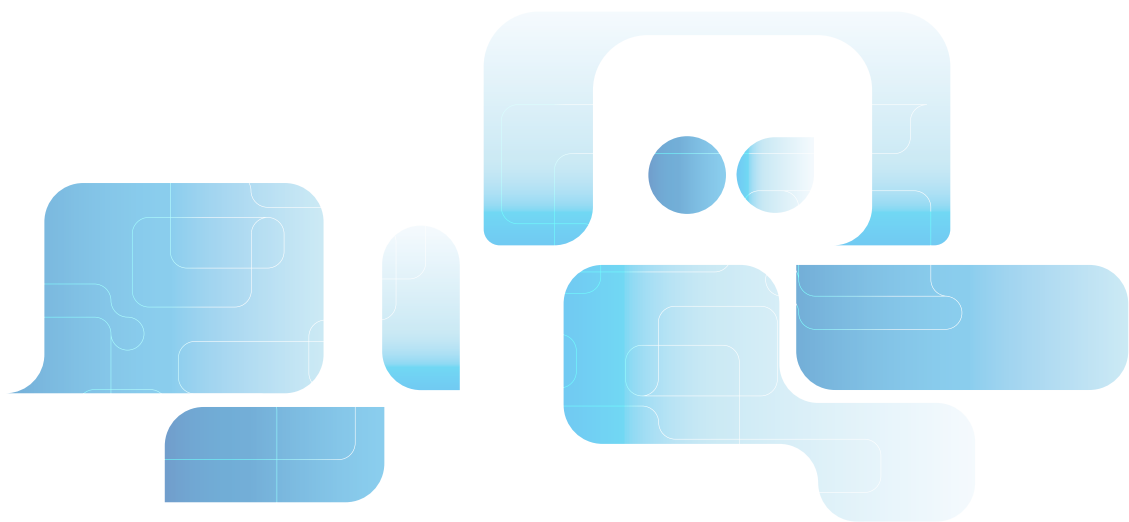
GVS's Scientific pipette stand holds up to six single or multichannel pipettes, protecting them from contamination. It is detachable and compatible with all Major pipette Brands.

Features

- A Compact design; Occupies less bench space
- A Compatible with all Major Pipette Brands
- A Hold up to 6 single and multi-channel pipettes
- A Special Notch Design ensures Compatibility & Easy Retrieval

Ordering information

Product Code	FLPFGPS030A
Positions	6
Color	Grey
Material	ABS
Dimension(L*W*H)	352*156*305mm
Net Weight	0.8kg



FLAME Pette

Multi-Channel Adjustable Volume Pipette

The use of a multi-channel pipette can greatly improve efficiency and reproducibility for lab scientists working with microplates. Working with 8 channels substantially reduces the number of pipetting steps and improves work efficiency dramatically.



Features




- A Ergonomic design allows comfortable grip and fatigue-free pipetting
- A 4-digit volume display provides accurate volume setting and easy visibility
- A Wide volume range: from 0.5–300µL
- A Enjoy minimal tip attachment and ejection forces, minimizing the risk of repetitive strain injuries
- A The lower part is autoclavable (at 121°C) to ensure sterility and avoid cross contamination
- A The lower part can be rotated to 360 to suit personal preference.
- A Easy to disassemble the lower part for replacement or cleaning
- A Color-coded control button helps to identify different volume ranges easily
- A Equipped with O-ring on the tip cone to ensure a tight seal

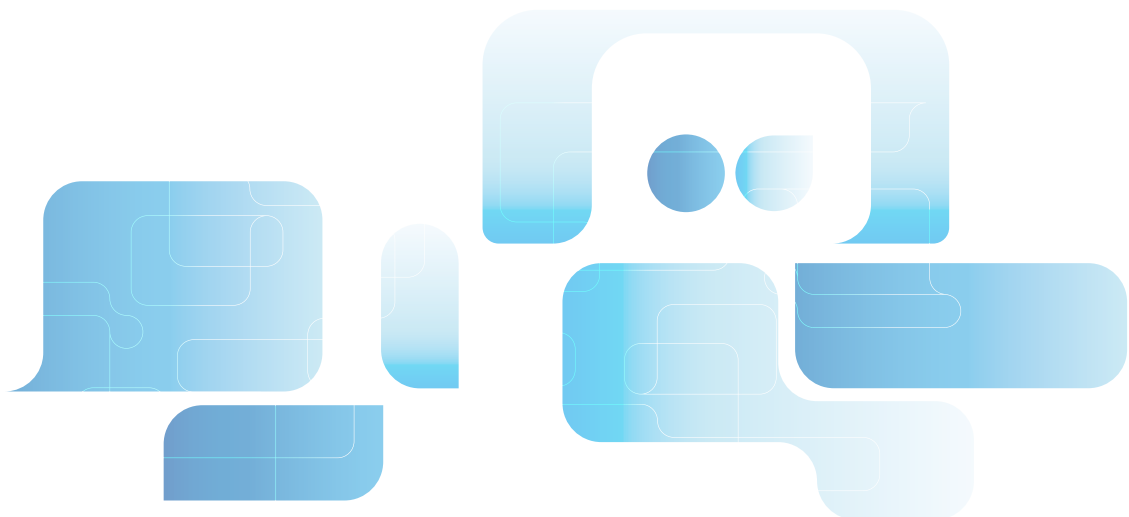
Application

A multi-channel pipette is especially used in high-throughput experiments, where multiplesamples or assays need to be processed quickly and accurately. Some common applications of a multi-channel pipette include

[Clinical Diagnostics Labs](#) [Biotechnology Labs](#) [Environmental Labs](#) [Food Testing Labs](#) [Chemistry Labs](#)

Ordering information

Product code	Volume range	Increment	Testing Volume	Maximum permissible systematic error (Inaccuracy)		Maximum permissible random error (Imprecision)		Pipette tip	Control button color	Autoclavable
FLPFGMC10A	0.5-10µL	0.01µL	10	2.00%	0.200	1.00%	0.100	10µL	 Orange	Yes (Autoclavable lower section at 121°C)
			5	4.00%	0.200	2.00%	0.100			
			1	8.00%	0.080	5.00%	0.050			
FLPFGMC50A	5-50µL	0.05µL	50	1.00%	0.500	0.40%	0.200	200µL	 Green	
			25	1.50%	0.375	0.80%	0.200			
			5	3.00%	0.150	2.00%	0.100			
FLPFGMC300A	30-300µL	0.5µL	300	0.60%	1.800	0.30%	0.900	300µL	 Light blue	
			150	1.00%	1.500	0.50%	0.750			
			30	3.00%	1.500	1.00%	0.500			



Automatic Pipette

GVS 6/8/12 Channels Variable Spacing Electronic Pipette



Application

The newly launched Variable Pitch Pipettes are available in 3 models of 6, 8 and 12 channels, covering all positions from 4.5mm to 19mm, making it easy to switch between different sizes of vessels, reducing the workload, saving time and greatly improving the reproducibility of experimental results.

- A Use a tube rack
- A Rearrange the orifice plates
- A Gel loading
- A Blood analysis
- A Cell plating
- A Cell culture

Six-channels Adjustable Spacing Pipette

Product Code	Range	Max capacity	Spacing	384 well plate (Spacing 4.5mm)	96 well plates (Spacing 9mm)	48 well plate (Spacing 13mm)	24 well plate (Spacing 19mm)	12 well plate (Spacing 26mm)
FLPA612A	0.5-12.5µl	13µl	9-19mm	-	✓	✓	✓	✓
FLPA650A	2-50µl	50.5µl						
FLPA6110A	5-110µl	115µl						
FLPA6300A	10-300µl	320µl						
FLPA61200A	50-1200µl	1250µl						

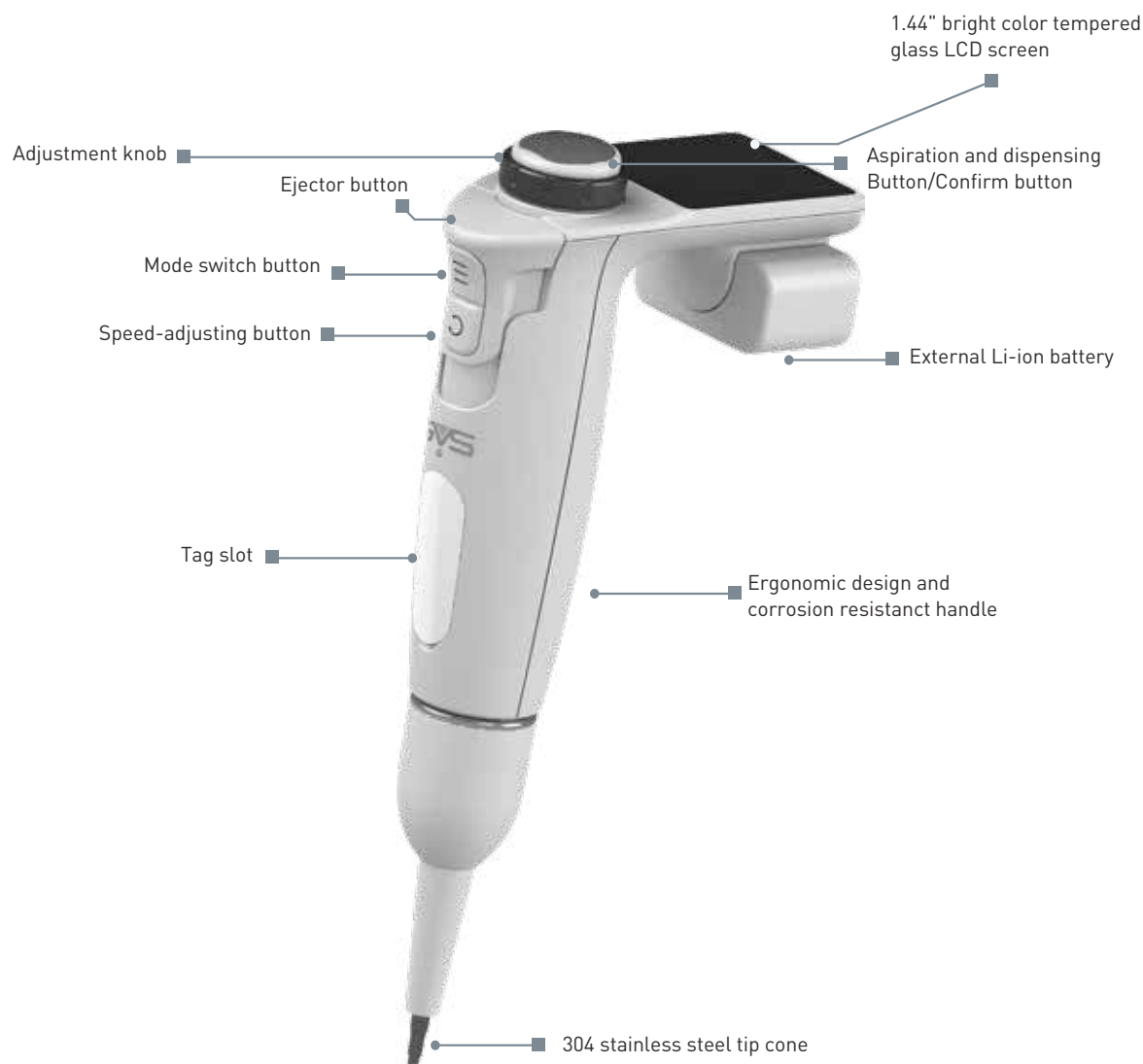
Eight-channels Adjustable Spacing Pipette

Product Code	Range	Max capacity	Spacing	384 well plate (Spacing 4.5mm)	96 well plates (Spacing 9mm)	48 well plate (Spacing 13mm)	24 well plate (Spacing 19mm)	12 well plate (Spacing 26mm)
FLPA812A	0.5-12.5µl	13µl	9-19mm	-	✓	✓	-	-
FLPA850A	2-50µl	50.5µl						
FLPA8110A	5-110µl	115µl						
FLPA8300A	10-300µl	320µl						
FLPA81200A	50-1200µl	1250µl						
FLPA812AA	0.5-12.5µl	13µl	4.5-14mm	✓	✓	✓	-	-
FLPA850AA	2-50µl	50.5µl						
FLPA8110AA	5-110µl	115µl						

Twelve-channels Adjustable Spacing Pipette

Product Code	Range	Max capacity	Spacing	384 well plate (Spacing 4.5mm)	96 well plates (Spacing 9mm)	48 well plate (Spacing 13mm)	24 well plate (Spacing 19mm)	12 well plate (Spacing 26mm)
FLPA1212A	0.5-12.5µl	13µl	4.5-9mm	✓	✓	-	-	-
FLPA1250A	2-50µl	50.5µl						
FLPA12110A	5-110µl	115µl						

GVS Single 8/12 Channels Electronic Pipette



Picture details



Single-channels Adjustable Spacing Pipette

Product Code	Volumn Range	Increment	Volume (μl)	Systematic Error		Random Error	
				+/-μl	+/-%	+/-μl	+/-%
FLPA0010A	0.2-10ul	0.1μl	1	0.025	2.5	0.015	1.5
			5	0.075	1.5	0.035	0.7
			10	0.1	1	0.04	0.4
FLPA0020A	0.5-20ul	0.1μl	2	0.15	7.5	0.04	2
			10	0.15	7.5	0.05	0.5
			20	0.2	1	0.06	0.3
FLPA0100A	2-100ul	0.5ul	10	0.2	2	0.1	1
			50	0.4	0.8	0.15	0.3
			100	0.6	0.6	0.15	0.15
FLPA0200A	5-200ul	0.5ul	20	0.5	2.5	0.2	1
			100	0.8	0.8	0.25	0.25
			200	1.5	0.75	0.4	0.2
FLPA0300A	10-300ul	1ul	30	0.75	2.5	0.24	0.8
			150	1.05	0.7	0.3	0.2
			300	1.2	0.4	0.45	0.15
FLPA0500A	10-500ul	1ul	50	0.8	1.6	0.35	0.7
			250	1.2	0.48	0.6	0.24
			500	2	0.4	0.8	0.16
FLPA1000A	50-1000ul	1ul	100	2	2	0.6	0.6
			500	2.5	0.5	1	0.2
			1000	4	0.4	1.5	0.15
FLPA5000A	0.1-5ml	10μl	500	5	1	2.5	0.5
			2500	12.5	0.5	5	0.2
			5000	30	0.6	10	0.2
FLPA10000A	1-10ml	100μl	1000	50	5	6	0.6
			+/-μl	50	1	10	0.2
			+/-μl	60	0.6	16	0.16



8 & 12 Channel Electronic Pipette

Product Code	Volumn Range	Increment	Volume (μl)	Systematic Error		Random Error	
				+/-μl	+/-%	+/-μl	+/-%
8 Channels							
FLPA8011A	0.2-10ul	0.1μl	1	0.025	2.5	0.015	1.5
			5	0.06	1.2	0.02	0.4
			10	0.08	0.8	0.025	0.025
FLPA8021A	5-100μl	1μl	10	0.2	2	0.1	1
			50	0.4	0.8	0.12	0.24
			100	0.5	0.5	0.15	0.15
FLPA8031A	10-300μl	1μl	30	0.75	2.5	0.24	0.8
			150	1.05	0.7	0.3	0.2
			300	1.2	0.4	0.45	0.15
12 Channels							
FLPA1201A	0.2-10ul	0.1μl	1	0.025	2.5	0.015	1.5
			5	0.06	1.2	0.02	0.4
			10	0.08	0.8	0.025	0.025
FLPA1202A	5-100μl	1μl	10	0.2	2	0.1	1
			50	0.4	0.8	0.12	0.24
			100	0.5	0.5	0.15	0.15
FLPA1203A	10-300μl	1μl	30	0.75	2.5	0.24	0.8
			150	1.05	0.7	0.3	0.2
			300	1.2	0.4	0.45	0.15

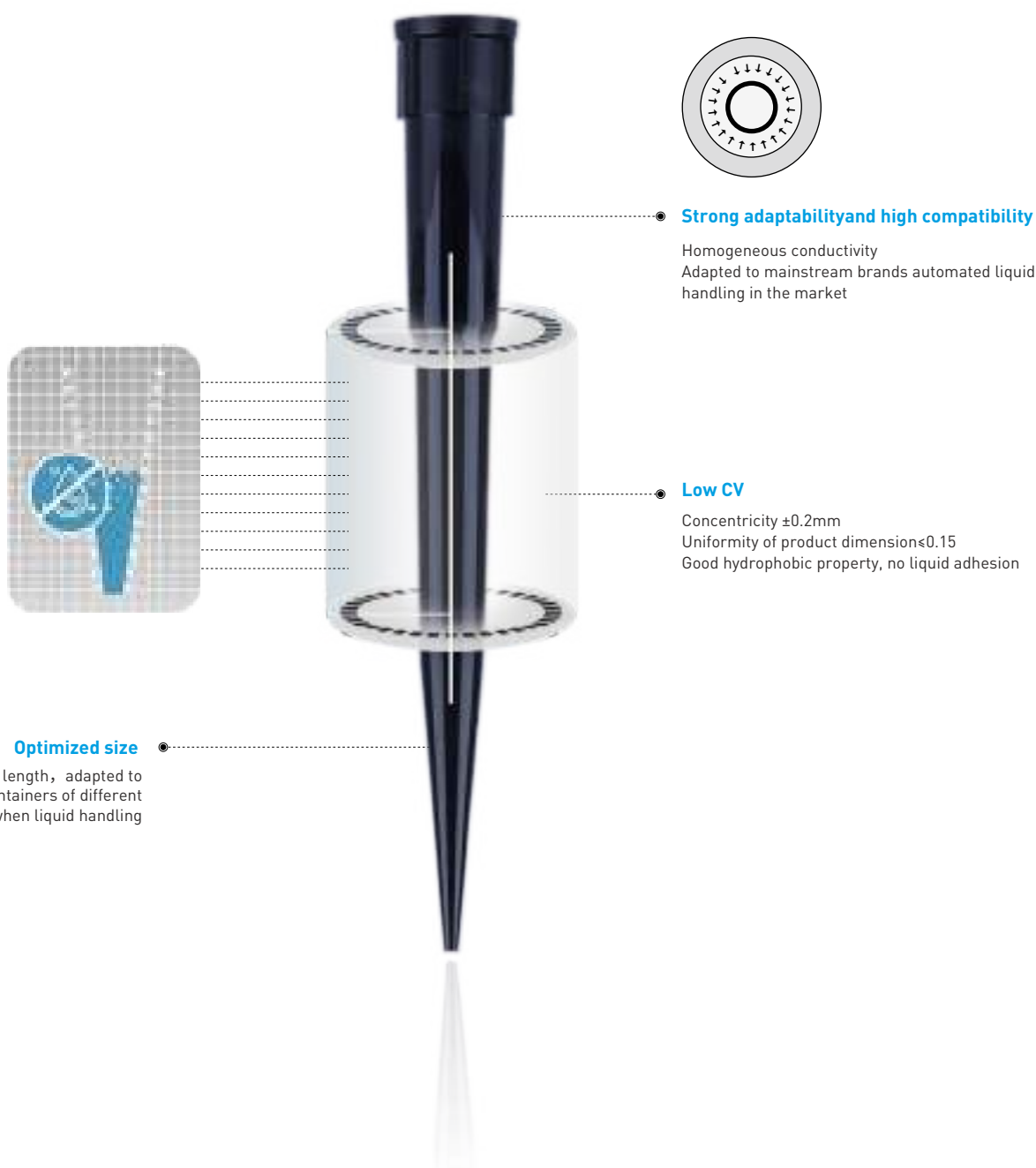
Pipette Tips

Pipette Tips

Automated pipette tips are compatible with a variety of automated pipetting workstations and automated sampling systems. They are used to distribute and transfer liquids to help complete high-throughput operation of biological samples. Universal pipette tips are made with high precision molds. With excellent processing technology and good pipetting performance, they are adapted to major brands such as DragonLab, Gilson, Eppendorf, Thermofisher, etc.

Features

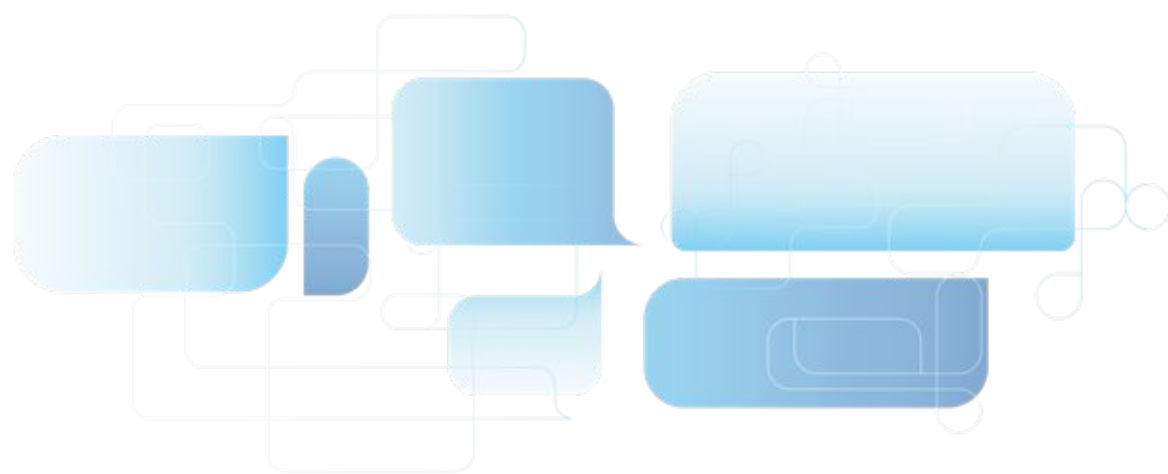
- A Made of high quality PP(polypropylene)
- A DNase/RNase free, Pyrogen free
- A Low CV Accuracy, strong hydrophobicity, no liquid adhesion
- A High quality filter, tight sealing, cross infection prevention
- A Excellent toughness, not easy to deform, good verticality and air tightness
- A Sterilization: Irradiation sterilization



Agilent



Sort	Name	Product Code	Packing
30µl	AG 30µl (384 wells) transparent pipette tip	PLAKGAT030ATP	384 pcs/box(1 rack/box), 50 box/ctn
	AG 30µl (384 wells) transparent pipette tip with filter	PLAKGAF030ATP	384 pcs/box(1 rack/box), 50 box/ctn
70µl	AG 70µl (384 wells) transparent pipette tip	PLAKGAT070ATP	384 pcs/box(1 rack/box), 50 box/ctn
	AG 70µl (384 wells) transparent pipette tip with filter	PLAKGAF070ATP	384 pcs/box(1 rack/box), 50 box/ctn
250µl	AG 250µl (96 wells) transparent pipette tip	PLAKGAT250ATP	96 pcs/box(1 rack/box), 50 box/ctn
	AG 250µl (96 wells) transparent pipette tip with filter	PLAKGAF250ATP	96 pcs/box(1 rack/box), 50 box/ctn



Tecan

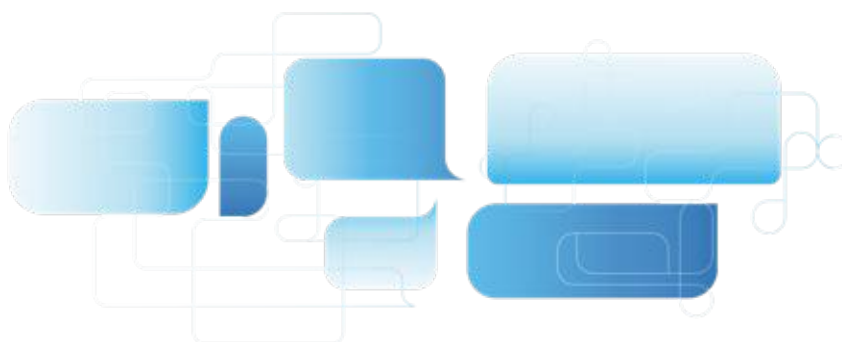


Sort	Name	Product Code	Packing
20µl	TC 20µl transparent pipette tip	PLAKGAT020TTPB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAT020TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 20µl transparent pipette tip with filter	PLAKGAF020TTPB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF020TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 20µl conductive pipette tip	PLAKGAT020TB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAT020TP	96 pcs/box (1 rack/box),50 box/ctn
	TC 20µl conductive pipette tip with filter	PLAKGAF020TB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF020TP	96 pcs/box (1 rack/box),50 box/ctn
	TC 50µl transparent pipette tip	PLAKGAT050TTPB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAT050TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 50µl transparent pipette tip with filter	PLAKGAF050TTPB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF050TTPP	96 pcs/box (1 rack/box),50 box/ctn
50µl	TC 50µl conductive pipette tip	PLAKGAT050TB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAT050TP	96 pcs/box (1 rack/box),50 box/ctn
	TC 50µl conductive pipette tip with filter	PLAKGAF050TB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF050TP	96 pcs/box (1 rack/box),50 box/ctn
	TC 50µl slender transparent pipette tip	PLAKGAT050TTPLP	96 pcs/box (1 rack/box),50 box/ctn
	TC 50µl slender transparent pipette tip with filter	PLAKGAF050TTPLP	96 pcs/box (1 rack/box),50 box/ctn
	TC 50µl slender conductive pipette tip	PLAKGAT050TLP	96 pcs/box (1 rack/box),50 box/ctn
	TC 50µl slender conductive pipette tip with filter	PLAKGAF050TLP	96 pcs/box (1 rack/box),50 box/ctn



Liquid Handling

Sort	Name	Product Code	Packing
200µl	TC 200µl transparent pipette tip	PLAKGAT200TTPB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF200TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 200µl transparent pipette tip with filter	PLAKGAF200TTPB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF200TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 200µl conductive pipette tip	PLAKGAT200TB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAT200TP	96 pcs/box (1 rack/box),50 box/ctn
	TC 200µl conductive pipette tip with filter	PLAKGAF200TB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF200TP	96 pcs/box (1 rack/box),50 box/ctn
1000µl	TC 1000µl transparent pipette tip	PLAKGAT1000TTPB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAT1000TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 1000µl transparent pipette tip with filter	PLAKGAF1000TTPB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF1000TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 200µl conductive pipette tip	PLAKGAT1000TB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAT1000TP	96 pcs/box (1 rack/box),50 box/ctn
	TC 200µl conductive pipette tip with filter	PLAKGAF1000TB	192 pcs/box(2 rack/box),24 box/ctn
		PLAKGAF1000TP	96 pcs/box (1 rack/box),50 box/ctn
5ml	TC 5ml transparent pipette tip	PLAKGAT5000TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 5ml transparent pipette tip with filter	PLAKGAF5000TTPP	96 pcs/box (1 rack/box),50 box/ctn
	TC 5ml conductive pipette tip	PLAKGAT5000TP	96 pcs/box (1 rack/box),50 box/ctn
	TC 5ml conductive pipette tip with filter	PLAKGAF5000TP	96 pcs/box (1 rack/box),50 box/ctn
MCA15µl	TC MCA 15µl(384 wells)transparent pipette tip	PLAKGAT15M3TP	384 pcs/box (1 rack/box),50 box/ctn
	TC MCA 15µl(384 wells)transparent pipette tip with filter	PLAKGAF15M3TP	384 pcs/box (1 rack/box),50 box/ctn
MCA50µl	TC MCA 50µl(96 wells)transparent pipette tip	PLAKGAT15M3TP	96 pcs/box (1 rack/box),50 box/ctn
	TC MCA 50µl(96 wells)transparent pipette tip with filter	PLAKGAF15M3TP	96 pcs/box (1 rack/box),50 box/ctn
	TC MCA 50µl(384 wells)transparent pipette tip	PLAKGAT15M3TP	384 pcs/box (1 rack/box),50 box/ctn
	TC MCA 50µl(384 wells)transparent pipette tip with filter	PLAKGAF15M3TP	384 pcs/box (1 rack/box),50 box/ctn
MCA125µl	TC MCA 125µl(384 wells)transparent pipette tip	PLAKGAT15M3TP	384 pcs/box (1 rack/box),50 box/ctn
	TC MCA 125µl(384 wells)transparent pipette tip with filter	PLAKGAF15M3TP	384 pcs/box (1 rack/box),50 box/ctn
MCA200µl	TC MCA 200µl(96 wells)transparent pipette tip	PLAKGAT15M3TP	96 pcs/box (1 rack/box),50 box/ctn
	TC MCA 200µl(96 wells)transparent pipette tip with filter	PLAKGAF15M3TP	96 pcs/box (1 rack/box),50 box/ctn



Hamilton



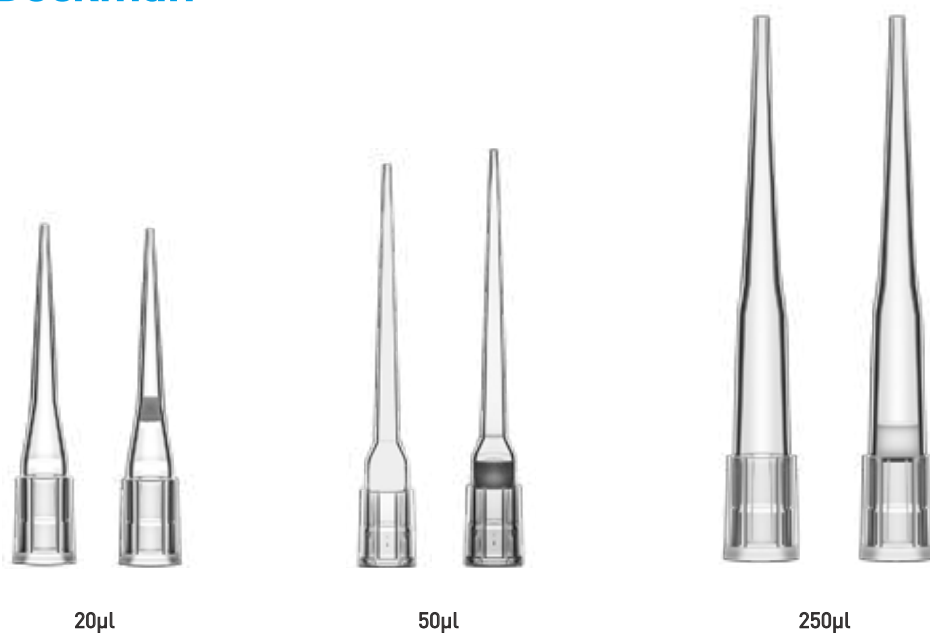
Sort	Name	Product Code	Packing
50µl	HM 50µl transparent pipette tip	PLAKGAT050HTPB	480pcs/box(5rack/box),9box/ctn
		PLAKGAT050HTPP	96pcs/box(1rack/box),50box/ctn
	HM 50µl transparent pipette tip with filter	PLAKGAF050HTPB	480pcs/box(5rack/box),9box/ctn
		PLAKGAF050HTPP	96pcs/box(1rack/box),50box/ctn
	HM 50µl conductive pipette tip	PLAKGAT050HB	480pcs/box(5rack/box),9box/ctn
		PLAKGAT050HP	96pcs/box(1rack/box),50box/ctn
	HM 50µl conductive pipette tip with filter	PLAKGAF050HB	480pcs/box(5rack/box),9box/ctn
		PLAKGAF050HP	96pcs/box(1rack/box),50box/ctn
	HM 50µl(II) conductive pipette tip	PLAKGAT0502HP	96pcs/box(1rack/box),50box/ctn
	HM 50µl(II) conductive pipette tip with filter	PLAKGAF0502HP	96pcs/box(1rack/box),50box/ctn
300µl	HM 300µl transparent pipette tip	PLAKGAT300HTPB	480pcs/box(5rack/box),9box/ctn
		PLAKGAT300HTPP	96pcs/box(1rack/box),50box/ctn
	HM 300µl transparent pipette tip with filter	PLAKGAF300HTPB	480pcs/box(5rack/box),9box/ctn
		PLAKGAF300HTPP	96pcs/box(1rack/box),50box/ctn
	HM 300µl conductive pipette tip	PLAKGAT300HB	480pcs/box(5rack/box),9box/ctn
		PLAKGAT300HP	96pcs/box(1rack/box),50box/ctn
	HM 300µl conductive pipette tip with filter	PLAKGAF300HB	480pcs/box(5rack/box),9box/ctn
		PLAKGAF300HP	96pcs/box(1rack/box),50box/ctn



Liquid Handling

Sort	Name	Product Code	Packing
300µl (Extended Length)	HM 300µl (Extended Length) transparent pipette tip	PLAKGAT300HTPLB	480pcs/box(5rack/box),9box/ctn
	HM 300µl (Extended Length) transparent pipette tip with filter	PLAKGAF300HTPLB	480pcs/box(5rack/box),9box/ctn
	HM 300µl (Extended Length) conductive pipette tip	PLAKGAT300HLP	96pcs/box(1rack/box),50box/ctn
	HM 300µl (Extended Length) conductive pipette tip with filter	PLAKGAF300HLP	96pcs/box(1rack/box),50box/ctn
1000µl	HM 1000µl transparent pipette tip	PLAKGAT1000HTPB	480pcs/box(5rack/box),9box/ctn
		PLAKGAT1000HTPP	96pcs/box(1rack/box),50box/ctn
	HM 1000µl transparent pipette tip with filter	PLAKGAF1000HTPB	480pcs/box(5rack/box),9box/ctn
		PLAKGAF1000HTPP	96pcs/box(1rack/box),50box/ctn
	HM 1000µl conductive pipette tip	PLAKGAT1000HB	480pcs/box(5rack/box),9box/ctn
		PLAKGAT1000HP	96pcs/box(1rack/box),50box/ctn
	HM 1000µl conductive pipette tip with filter	PLAKGAF1000HB	480pcs/box(5rack/box),9box/ctn
		PLAKGAF1000HP	96pcs/box(1rack/box),50box/ctn

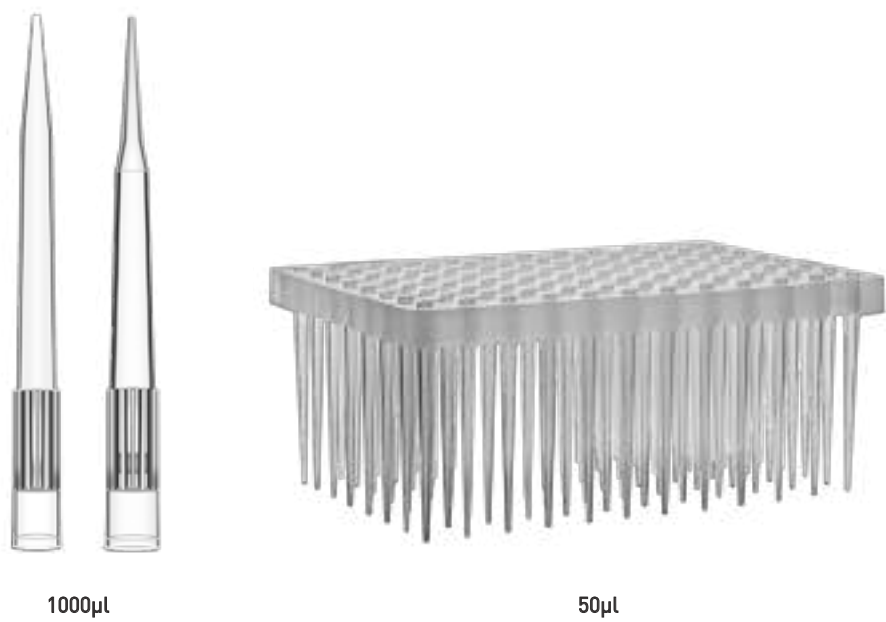
Beckman



Sort	Name	Product Code	Packing
20µl	BKM 20µl transparent pipette tip	PLAKGAT020BTP	96pcs/box(1rack/box),50box/ctn
	BKM 20µl transparent pipette tip with filter	PLAKGAF020BTP	96pcs/box(1rack/box),50box/ctn
50µl	BKM 50µl transparent pipette tip	PLAKGAT050BTP	96pcs/box(1rack/box),50box/ctn
	BKM 50µl transparent pipette tip with filter	PLAKGAF050BTP	96pcs/box(1rack/box),50box/ctn
250µl	BKM 250µl transparent pipette tip	PLAKGAT250BTP	96pcs/box(1rack/box),50box/ctn
	BKM 250µl transparent pipette tip with filter	PLAKGAF250BTP	96pcs/box(1rack/box),50box/ctn
1000µl	BKM 1000µl transparent pipette tip	PLAKGAT1000BTP	96pcs/box(1rack/box),50box/ctn
	BKM 1000µl transparent pipette tip with filter	PLAKGAF1000BTP	96pcs/box(1rack/box),50box/ctn



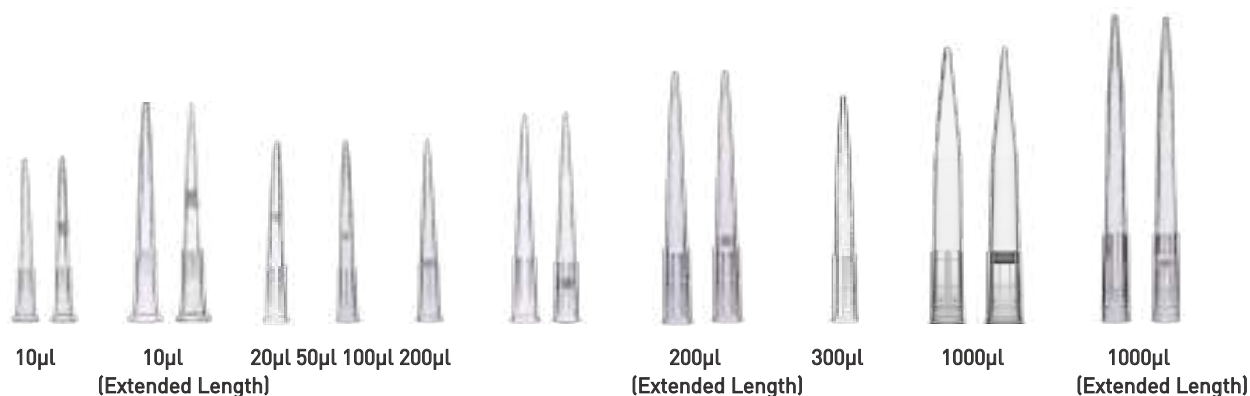
Xantus, Apricot Designs



Sort	Name	Product Code	Packing
1000µl	XTS 1000µl transparent pipette tip	PLAKGAT1000XTP	960 pcs/box(10 rack/box), 10 box/ctn
	XTS 1000µl transparent pipette tip with filter	PLAKGAF1000XTP	96 pcs/box(4 rack/box), 20 box/ctn
50µl	MX 50µl(96 wells)transparent pipette tip	PLAKGAT50MXTP	96pcs/box(1rack/box),50box/ctn
	MX 50µl(384 wells) transparent pipette tip	PLAKGAT50MXTP3	384pcs/box(1rack/box),50box/ctn



Universal Pipette Tip Series



Sort	Name	Product Code	Packing
10µl	10µl universal pipette tip	PLAKGPT10TP	1000 pcs/bag, 20 bag/ctn
		PLAKGPT10TP9	96 pcs/box, 50 box/ctn
	10µl universal pipette tip with filter	PLAKGFT10TP	1000 pcs/bag, 20 bag/ctn
		PLAKGFT10TP9	96 pcs/box, 50 box/ctn
10µl (Extended Length)	10µl extended length (50mm) universal pipette tip	PLAKGPT10TPL	1000 pcs/bag, 20 bag/ctn
		PLAKGPT10TPL9	96 pcs/box, 50 box/ctn
	10µl extended length (50mm) universal pipette tip with filter	PLAKGFT10TPL	1000 pcs/bag, 20 bag/ctn
		PLAKGFT10TPL9	96 pcs/box, 50 box/ctn
20µl	20µl universal pipette tip with filter	PLAKGFT20TP	1000 pcs/bag, 20 bag/ctn
		PLAKGFT20TP9	96 pcs/box, 50 box/ctn
50µl	50µl universal pipette tip with filter	PLAKGFT50TP	1000 pcs/bag, 20 bag/ctn
		PLAKGFT50TP9	96 pcs/box, 50 box/ctn
100µl	100µl universal pipette tip with filter	PLAKGFT100TP	1000 pcs/bag, 20 bag/ctn
		PLAKGFT100TP9	96 pcs/box, 50 box/ctn
200µl	200µl universal pipette tip	PLAKGPT200TP	1000 pcs/bag, 20 bag/ctn
		PLAKGPT200TP9	96 pcs/box, 50 box/ctn
	200µl universal pipette tip with filter	PLAKGFT200TP	1000 pcs/bag, 20 bag/ctn
		PLAKGFT200TP9	96 pcs/box, 50 box/ctn
200µl (Extended Length)	200µl extended length (89mm) universal pipette tip	PLAKGPT200TPL	1000 pcs/bag, 5 bag/ctn
		PLAKGPT200TPL9	96 pcs/box, 50 box/ctn
	200µl extended length (89mm) universal pipette tip with filter	PLAKGFT200TPL	1000 pcs/bag, 5 bag/ctn
		PLAKGFT200TPL9	96 pcs/box, 50 box/ctn
	200µl extended length (89mm) Wide-mouth universal pipette tip	PLAKGPT200KTPL	1000 pcs/bag, 5 bag/ctn
		PLAKGPT200KTPL9	96 pcs/box, 50 box/ctn
	200µl extended length (89mm) Wide-mouth universal pipette tip with filter	PLAKGFT200KTPL	1000 pcs/bag, 5 bag/ctn
		PLAKGFT200KTPL9	96 pcs/box, 50 box/ctn



Liquid Handling

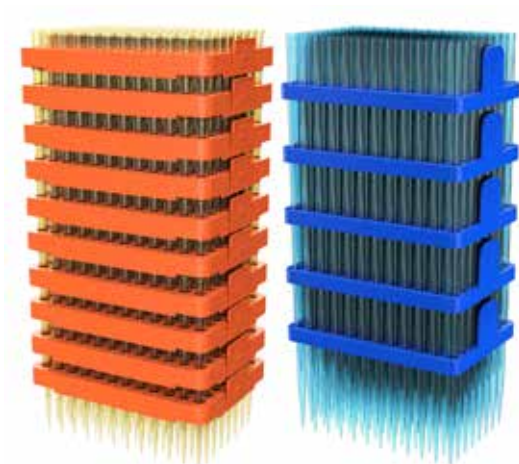
Sort	Name	Product Code	Packing
300µl	300µl universal pipette tip	PLAKGFT300TP	1000 pcs/bag, 5 bag/ctn
		PLAKGFT300TP9	96 pcs/box, 50 box/ctn
1000µl	1000µl universal pipette tip	PLAKGPT1000TP	1000 pcs/bag, 5 bag/ctn
		PLAKGPT1000TP9	96 pcs/box, 50 box/ctn
	1000µl universal pipette tip with filter	PLAKGFT1000TP	1000 pcs/bag, 5 bag/ctn
		PLAKGFT1000TP9	96 pcs/box, 50 box/ctn
	1000µl Blue universal pipette tip	PLAKGPT1000B	1000 pcs/bag, 5 bag/ctn
		PLAKGPT1000B9	96 pcs/box, 50 box/ctn
	1000µl Blue universal pipette tip with filter	PLAKGFT1000B	1000 pcs/bag, 5 bag/ctn
		PLAKGFT1000B9	96 pcs/box, 50 box/ctn
	1000µl Wide-mouth universal pipette tip	PLAKGPT1000KTP	1000 pcs/bag, 5 bag/ctn
		PLAKGPT1000KTP9	96 pcs/box, 50 box/ctn
	1000µl Wide-mouth universal pipette tip with filter	PLAKGFT1000KTP	1000 pcs/bag, 5 bag/ctn
		PLAKGFT1000KTP9	96 pcs/box, 50 box/ctn
1000µl (Extended Length)	1000µl extended length (102mm) universal pipette tip	PLAKGPT1000TPL	1000 pcs/bag, 5 bag/ctn
		PLAKGPT1000TPL9	96 pcs/box, 50 box/ctn
	1000µl extended length (102mm) universal pipette tip with filter	PLAKGFT1000TPL	1000 pcs/bag, 5 bag/ctn
		PLAKGFT1000TPL9	96 pcs/box, 50 box/ctn
5ml	5ml universal pipette tip(ST)	PLAKGT5ML1	100pcs/bag,10bag/ctn
		PLAKGT5ML1P	24/box, 8box/medium box, 2medium box/ctn
	5ml universal pipette tip with filter(ST)	PLAKGT5MLF1	100pcs/bag,10bag/ctn
		PLAKGT5MLF1P	24/box, 8box/medium box, 2medium box/ctn
	5ml universal pipette tip(TS)	PLAKGT5ML2	100pcs/bag,10bag/ctn
		PLAKGT5ML2P	40/box, 8box/medium box, 2medium box/ctn
	5ml universal pipette tip with filter(TS)	PLAKGT5MLF2	100pcs/bag,10bag/ctn
		PLAKGT5MLF2P	40/box, 8box/medium box, 2medium box/ctn
	5ml universal pipette tip(EP)	PLAKGT5ML3	100pcs/bag,10bag/ctn
		PLAKGT5ML3P	24/box, 8box/medium box, 2medium box/ctn
	5ml universal pipette tip with filter(EP)	PLAKGT5MLF3	100pcs/bag,10bag/ctn
		PLAKGT5MLF3P	24/box, 8box/medium box, 2medium box/ctn



Liquid Handling

Sort	Name	Product Code	Packing
10ml	10ml universal pipette tip(TS)	PLAKGT10ML1	100pcs/bag,10bag/ctn
		PLAKGT10ML1P	24/box, 8box/medium box, 2medium box/ctn
	10ml universal pipette tip with filter(TS)	PLAKGT10MLF1	100pcs/bag,10bag/ctn
		PLAKGT10MLF1P	24/box, 8box/medium box, 2medium box/ctn
	10ml universal pipette tip(EP)	PLAKGT10ML2	100pcs/bag,10bag/ctn
		PLAKGT10ML2P	24/box, 8box/medium box, 2medium box/ctn
	10ml universal pipette tip with filter(EP)	PLAKGT10MLF2	100pcs/bag,10bag/ctn
		PLAKGT10MLF2P	24/box, 8box/medium box, 2medium box/ctn
	10ml universal pipette tip(RN)	PLAKGT10ML3	100pcs/bag,10bag/ctn
		PLAKGT10ML3P	24/box, 8box/medium box, 2medium box/ctn
	10ml universal pipette tip with filter(RN)	PLAKGT10MLF3	100pcs/bag,10bag/ctn
		PLAKGT10MLF3P	24/box, 8box/medium box, 2medium box/ctn

Available also in Stacked Refill Tips



Product Code	Description
PLAFGSR10XS	Staked refill, 10ul, sterile, 96pcs/layer, 10 layers stack
PLAFGSR200XS	Staked refill, 200ul, sterile, 96pcs/layer, 10 layers stack
PLAFGSR1250XS	Staked refill, 1250ul, sterile, 96pcs/layer, 5 layers stack



Rainin Pipette Tips



Sort	Name	Product Code	Packing
20µl	20µl universal pipette tip	PLAKGPT20RTP	1000 pcs/bag, 20 bag/ctn
		PLAKGPT20RTP9	96 pcs/box, 50 box/ctn
	20µl universal pipette tip with filter	PLAKGFT20RTP	1000 pcs/bag, 20 bag/ctn
		PLAKGFT20RTP9	96 pcs/box, 50 box/ctn
200µl	200µl universal pipette tip	PLAKGPT200RTP	1000 pcs/bag, 20 bag/ctn
		PLAKGPT200RTP9	96 pcs/box, 50 box/ctn
	200µl universal pipette tip with filter	PLAKGFT200RTP	1000 pcs/bag, 20 bag/ctn
		PLAKGFT200RTP9	96 pcs/box, 50 box/ctn
300µl	300µl universal pipette tip	PLAKGPT300RTP	1000 pcs/bag, 20 bag/ctn
		PLAKGPT300RTP9	96 pcs/box, 50 box/ctn
	300µl universal pipette tip with filter	PLAKGFT300RTP	1000 pcs/bag, 20 bag/ctn
		PLAKGFT300RTP9	96 pcs/box, 50 box/ctn
1000µl	1000µl universal pipette tip	PLAKGPT1000RTP	1000 pcs/bag, 5 bag/ctn
		PLAKGPT1000RTP9	96 pcs/box, 50 box/ctn
	1000µl universal pipette tip with filter	PLAKGFT1000RTP	1000 pcs/bag, 5 bag/ctn
		PLAKGFT1000RTP9	96 pcs/box, 50 box/ctn



HLF Pipette Tips



Sort	Name	Product Code	Packing
1000µl	S-H11A 1000ul universal pipette tip with filter	PLAKGPT1000TPL9S	96 pcs/box, 50 box/ctn

FLAMETIP Pipette Micro Filter Tips



Description

Natural, with filter, sterilized in rack

Purpose

Use for liquid transfer, zero retention filter.

Materials

Tips: PP (Polypropylene)

Color: Natural

Rack box: PP (Polypropylene)

Features

- A FLAMETIP are manufactured from super clear high quality Polypropylene
- A The surfaces of the tips are produced through a special process, this process makes the tip inner surface become super hydrophobic
- A Preferred accessories for most brand micropipettor
- A Tips with PP filter are also available
- A Packaged in re-sealable plastic bags or extra-rigid autoclavable racks
- A Every rack or case is printed with lot No. for quality traceability
- A Non-Pyrogenic and validated per FDA guidelines on LAL testing for medical devices and company guidelines. The acceptance level for product is less than 0.5 EU/ml
- A DNase/RNase-free
- A Sterilized by gamma irradiation SAL 10-6(1S011137)
- A Shelf life: 3 years after month of production
- A Manufactured in a Class 100,000 cleanroom environment
- A Manufactured under ISO13485:2016 and ISO9001:2015 quality management system
- A This product has been tested and is free of any detectable Nucleic Acid.
- A All material are certified metal-free which compliance with US Pharmacopoeia guidelines.
- A This product has been tested and is free of ATP



Ordering information

Product Code	Description	Sterile	Qty/PK	Qty/Box	Qty/Case
FTS252010	10 µl , natural, with filter, sterilized, packaged in rack box	Yes	96	960	1920
FTS233010	10 µl , long, natural, with filter, sterilized, packaged in rack box	Yes	96	960	1920
FTS252020	20 µl , natural, with filter, sterilized, packaged in rack box	Yes	96	960	1920
FTS252100	100 µl , natural, with filter, sterilized, packaged in rack box	Yes	96	960	1920
FTS231200	200 µl , natural, with filter, sterilized, packaged in rack box	Yes	96	960	1920
FTS233300	300 µl , natural, with filter, sterilized, packaged in rack box	Yes	96	960	1920
FTS252000	1000 µl , natural, with filter, sterilized, packaged in rack box	Yes	96	960	1920
FTS371000	1000 µl , long, natural, with filter, sterilized, packaged in rack box	Yes	96	960	1920

Dispenser Tips

Dispenser Tips



Dispenser Tips for Repeating Pipettor

Manufactured from high-quality virgin plastics, these tips are compatible with most standard repeating pipettes and are suitable for a wide range of applications. They are produced without chemical additives to prevent reagent contamination.

Features and Benefits

- maximizes fluid usage
- A Ergonomic funnel-shaped design enables easy handling and protects gloves from damage
- A Manufactured entirely from premium virgin high-density polyethylene (HDPE) and polypropylene (PP)
- A Utilizes the direct displacement method, offering a safe and reliable solution for dispensing viscous, infectious, and volatile liquids
- A Every tip is individually tested during automated production to ensure consistent quality and performance

Ordering information

Product Code	Description	PS/BOX
PLAKG020XTPSA	200µl Dispenser tips, sterile, 10pcs/bag,500pcs/carton	500
PLAKG01XTPXSA	1000µl Dispenser tips, sterile, 10pcs/bag,500pcs/carton	500
PLAKG5XTPXSA	5ml Dispenser tips, sterile, 10pcs/bag,500pcs/carton	500
PLAKG10XTPXSA	10ml Dispenser tips, sterile, 10pcs/bag,500pcs/carton	300
PLAKG50XTPXSA	50ml Dispenser tips, sterile, 10pcs/bag,500pcs/carton	100
PLAKG020XTPA	200µl Dispenser tips, sterile, 1pc/bag,500pcs/carton	500
PLAKG01XTPA	1000µl Dispenser tips, sterile, 1pc/bag,500pcs/carton	500
PLAKG5XTPA	5ml Dispenser tips, sterile, 1pc/bag,500pcs/carton	500
PLAKG10XTPA	10ml Dispenser tips, sterile, 1pc/bag,500pcs/carton	300
PLAKG50XTPA	50ml Dispenser tips, sterile, 1pc/bag,500pcs/carton	100



FLAME Filler

FLAME Filler

Electronic Pipette Filler



Features

- ALightweight, ergonomic designs allow longer, fatigue-free pipetting
- APowerful motor fills a 25mL pipette in<5 seconds
- AOverfilling and contamination are prevented by a 0.45 µm hydrophobic filter
- AAutoclavable silicone pipette adapter
- AFour speeds are available for aspirating and dispensing liquid
- ALarge color LCD display provides visual confirmation of remaining battery charge and speed settings
- AEfficient lithium-ion battery offers long runtime on each charge
- AProvides accurate, reproducible filling and dispensing from 0.1 to 100 mL

1600mAh

Large LCD display

4 speeds



Specifications

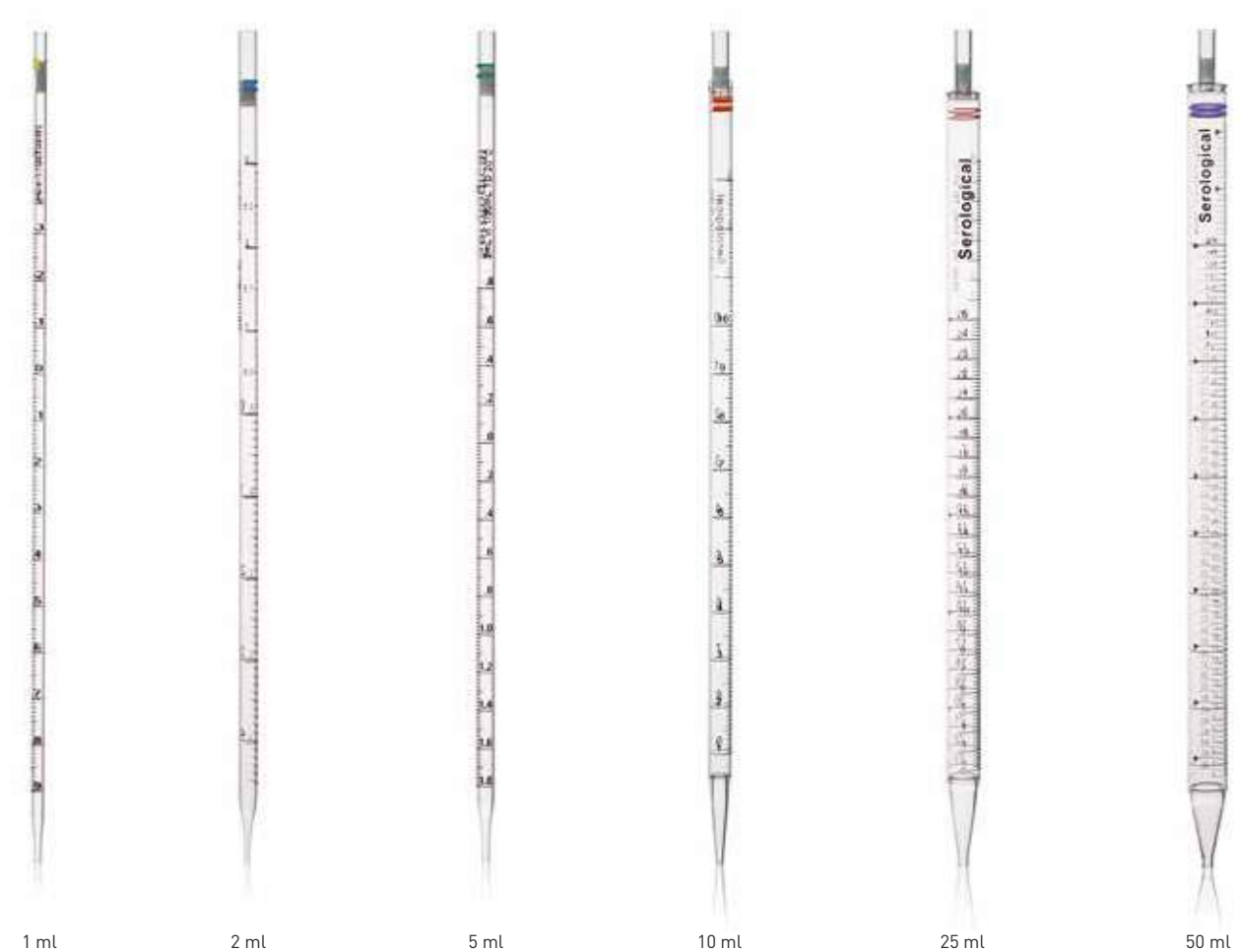
Product Code	FLPFGEP101A
Pipette Type	Glass or Plastic Pipette (0.1-100ml)
Speeds	4 levels
Noise	<55db
Display	LCD
Dimension (L*W*H)	56*146*40mm
Weight	235g
Permissible Ambient Temperature	5-40°C
Permissible Relative humidity	10%-95%, No condensation
Atmospheric Pressure	79.5 kPa-106 kPa
Adapter Input Voltage	100-240V AC
Adapter Frequency	50/60HZ
Adapter Output Current	2A
Adapter Output Voltage	5V DC
Battery	Lithium-ion; Voltage: 3.7V; weight: about 40g; capacity: 1600mAH
Battery Life	About 10h
Battery Charging time	About 2h

Serological Pipette

Serological Pipette, Plastic

Designed for quantitatively transferring and dispensing exact volumes of liquid.

- ABiologically inert PS, disposable
- AEasy-to-read graduation, color-coded by size for identification
- ASterile and non-sterile are available



Ordering information

Product Code	Volume (ml)	Incremenys	Over fill capacity	Band Color	Qty/PK	Qty/Cs
CELCUMG011000101	1ml	1/100	0.2ml	Yellow	50	1000
CELCUMG011000102	2ml	1/100	0.2ml	Green	50	1000
CELCUMG011000103	5ml	1/10	2.5ml	Blue	50	500
CELCUMG011000104	10ml	1/10	3ml	Red	50	500
CELCUMG011000105	25ml	1/5	10ml	Purple	25	250
CELCUMG011000106	50ml	1/2	5ml	Black	20	200



Mini Serological Pipettes

A Purpose: Use for liquid transfer

A Materials:

Pipette: GPPS (General polystyrene), compliance with USP Class VI

Filter: PO (Polyolefin)



Features

A Temperature: -20°C to +50°C

A Available in individually packed in peel-to-open wrap

A Negative graduations up to -3mL (total volume = 8mL)

A Graduations are calibrated for accurate dispensing to within ±2%

A DNase/RNase free

A Non-pyrogenic

A Sterilized by irradiation SAL10-6 (ISO11137)

A Shelf Life: 3 years after month of production

A Manufactured in a class 100,000 room environment

A Manufactured under ISO13485 and ISO9001 quality management system



Ordering information

Product Code	Volume (ml)	Incremenys	Over fill capacity	Band Color	Qty/PK	Qty/Cs
CELCUJGMS010105	5ml	1/10	2.5ml	Blue	-	200
CELCUJGMS010205	5ml	1/10	2.5ml	Blue	-	200
CELCUJGMS010210	10ml	2/10	3ml	Orange	-	150
CELCUJGMS010225	25ml	2/10	10ml	Red	-	100



Pipette Controller

Pipette Controller

Adjustable aspirate liquid and dispense liquid volume.

Adjustable pipetting volume. No need to staring at the liquid surface.
Meet your need within a simple touch.

Light pressing, without pressing switch

Regular button pressing strength of a normal auxiliary liquid suction device is 1000g. Long-time pressing will make fingers tiring. This pipette controller is only 110g. A simple light touch will be enough for imbibition, pipetting, dispense, and mix.

A kind of pipette which can incline to do imbibition and drainage while without influencing the precision

Pipette can incline to do imbibition and drainage, while no damage will be done to its precision. Different with regular suction device which needs vertical liquid pipette, but complete imbibition, drainage, and separation according to scales.

Operating space is reduced 50%

To the unreasonable product structure caused by the narrow space of biological safety cabinet and the U-shape design, GVS pipette controller uses V-shape structure which makes the gravity center of the liquid pipette closer to user's hand and effectively lower the height of spreading elbow when doing liquid relief and reduces user's tiring level. Adjustable liquid pipette can meet various requirements of different experiments and coordinate with laboratory technicians' height to best condition.

4 modes, precise pipetting

Includes free mode, manual mode, liquid distribution mode, and mixed-blowing mode. This the first pipette controller which can set status of liquid imbibition and liquid separation.

Structure renovation. The pipette controller with no returning liquid.

With a better structure design comparing to regular pipette tube and auxiliary liquid suction device, motor control of high precision, and compressor structure of accurate positioning, the controller does not have any possibility of returning liquid.



Ordering information

Product Code	Description
FLPAMP10A	Pipette Controller Volumn Range: 10ml

Environmental Monitoring

Product collection



GVS Filter Technology is a fully integrated producer and supplier of membrane based solutions for the environmental monitoring community.

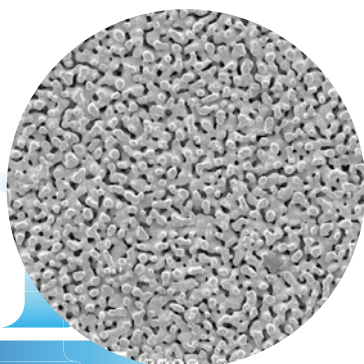
Poor Air and Water Quality around the world is a severe health risk for the population. Particulates impact the quality of the air we breathe, the water we drink and the space we live in everyday.

Standards and regulations for air and water particulate monitoring have been established by global environmental agencies to define, measure and mitigate issues. Regulations provide established methods for the analysis and definition of air and water quality. Global Standards have been established to define best practices for environmental monitoring using the most accurate procedures and test methods.

GVS supports the need for environmental monitoring and controls and offers a comprehensive suite of products developed for the air and water monitoring market. These include membranes and filters for air particulate monitoring, water quality, chemical, soil and asbestos analysis. GVS products are designed to be used in environmental testing and meet the Global Regulation Standards for air and water quality monitoring and analysis. All GVS membranes and filters are manufactured in ISO certified facilities to ensure reliable performance each and every time.

GVS products for environmental testing include applications and testing for:

- A Environmental air monitoring
- A Air pollution monitoring from stacks, flues and aerosols
- A Industrial and home air monitoring
- A Solutions for particulate matter testing
- A Chemical analysis
- A Asbestos analysis
- A Oil monitoring
- A Water testing
- A Heavy metal testing
- A Smoke number measurement
- A Emission testing
- A Gas monitoring
- A Exhaust gas control
- A Gravimetric analysis
- A Preparation for qualitative analysis



Environmental monitoring

A Environmental monitoring describes the processes and activities that need to take place to characterize and monitor the quality of the environment.

A Environmental monitoring is used in the preparation of environmental impact assessments, as well as in many circumstances in which human activities carry a risk of harmful effects on the natural environment.

A All monitoring strategies and programmes have reasons and justifications which are often designed to establish the current status of an environment or to establish trends in environmental parameters.

A In all cases the results of monitoring will be reviewed, analyzed statistically and published.

A Air pollutants are atmospheric substances which may potentially have a negative impact on the environment and organism health.

A With the evolution of new chemicals and industrial processes has come the introduction or elevation of pollutants in the atmosphere, as well as environmental research and regulations, increasing the demand for air quality monitoring

Besides gaseous pollutants, the atmosphere can also be polluted by particles. These particles (either in suspension, fluid or in solid state), have a divergent composition and size and are sometimes called aerosols. They are often catalogued as 'floating dust', but are best known as particulate matter (PM).

This floating dust is most often categorized based on their aerodynamic diameter. The aerodynamic diameter of a dust particle is the diameter of a sphere-shaped particle that shows the same behavior in the atmosphere as a dust particle (which does not necessarily have a sphere shape). In the framework of air quality problems, particulate matter is the most important.

Particulate matter such as PM₁₀, PM_{2.5}, PM₁ and PM_{0.1} is defined as the fraction of particles with an aerodynamic diameter smaller than respectively 10, 2.5, 1 and 0.1 μm (for your information: 1 μm = 1 millionth of a meter or 1 thousandth of a millimeter). In comparison, the average diameter of a human hair equals 50-70 μm (see figure below)



Membranes Selection Guide

Ambient air monitoring methods for the analysis and definition of particulates and chemicals present in the air.

The tables below provide guidance in the selection of the appropriate filters for air monitoring and match relevant specifications to the regional regulatory body.

Country	Regulation
U.S.A.	EPA 40 CFR 50, 40 CFR 53 EPA 600/R-94-038b
EU	Directive 2015/1480/EC EN12341-2014 for PM2.5/PM10
CHINA	GB 3095-2012 HJ 656-2013 for PM2.5 HJ618-2011 FOR PM2.5/PM10
BRAZIL	CONAMA Resolution 003/90
SOUTH KOREA	Clean Air Conservation Act
JAPAN	Fifth Basic Environment Plan
INDIA	Revised National Ambient Air Quality Standards
MEXICO	Air Quality Mexican Official Standards
AUSTRALIA	Air NEPM

* As of December 2018.

Verify for your specific local and country requirements.

Analysis	Recommended Membranes
PM 2.5 PARTICULATE	PM 2.5 PTFE
PM 10 PARTICULATE	QUARTZ FIBER GLASS FIBER PTFE MEMBRANE
PARTICULATE MONITORING	PM 2.5 PTFE GLASS FIBER QUARTZ FIBER SILVER MEMBRANE
ASBESTOS	POLYCARBONATE MCE SILVER MEMBRANE
HEAVY METAL	QUARTZ FIBER SILVER MEMBRANE
CHEMICAL ANALYSIS	QUARTZ FIBER GLASS FIBER PTFE MEMBRANE SILVER MEMBRANE



PM 2.5 PTFE Membrane



Product Characteristics

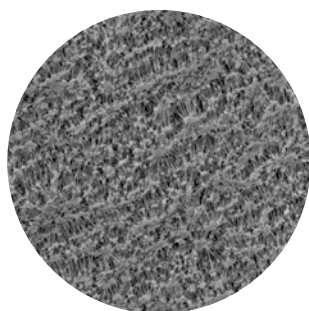
Filter thickness	30-40 µm
Filter diameter	46.2 mm
Filter pore size	2.0 µm
Support ring material	Polypropylene
Total support ring thickness	0.38 mm
Support ring width	3.68 mm
Particle retention (0.3µm)	99.7 %
Pressure drop (0.3µm) @16.67 l/min clean air	30 cm water
Alkalinity	<25 µeq/g of filter
Temperature weight loss stability	<20 µg
Drop test weight loss stability	<20 µg
Moisture weight gain stability	<10 µg

GVS Life Sciences PM 2.5 PTFE Membrane is a high-purity, thin membrane for PM 2.5 ambient air monitoring. Each membrane is sequentially numbered with a chemically resistant polypropylene support ring. The low tare mass allows for accurate gravimetric determinations. No glues or adhesives are used in making the membranes and its stable design eliminates curling, keeping the membrane flat allowing for robot use.

Ordering information

Product Code	Description	Pore Size (µm)	Quantity
759310	PM 2.5 PTFE Membrane Disk, EPA Conforming	2.0	50 /pk

Polytetrafluoroethylene (PTFE) Membrane



PTFE (fine powder resin) is expanded into a 3-dimensional web-like structure called PTFE which creates billions of microscopic pores. This structure utilizes the inherent hydrophobic (water-resistant) and non-stick nature of PTFE to allow removal of particulate captured on the membrane surface. This allows air to pass easily through the membrane while collecting particulate as small as 0.1 micron on its surface. GVS PTFE disc are membranes used for general applications in the environmental monitoring.

Product Characteristics

Pore Size (µm)	Bubble Point (EtOH) (kPa)	Flow Time (MeOH) (sec)	Thickness (µm)
0.22	107.9 -152.0	80 -140	100 -180
0.45	63.7-103.0	40 - 75	100 -180

Ordering information

Dimensions Packaging	13 mm 100/pk	25 mm 100/pk	47 mm 100/pk
0.22 µm	1215485	1215486	1215487
0.45 µm	1215491	1215492	1215493
0.5 µm			1215501

Pore sizes

Glass Microfiber Filter

GVS Filter Technology offers a wide range of glass microfiber filters made of 100% borosilicate glass fibers without binders. The depth structure of the filter with its large surface area provides an outstanding impurity retention capacity combined with a low filter resistance. Glass fiber filters adsorb the finest particles down to 1 µm from liquids and < 1 µm in air and gases, as the electrostatic interaction between the glass fibers and gases is better than between glass fibers and liquids. Temperature resistant up to 500° C (with organic binders up to 180° C).

Glass Microfiber without Binder GF 1.6 µm



Features and Benefits

- A Very small particles retention
- A Resistance to aggressive substances
- A Temperatures up to 500 °C
- A Fine retention with fast flow
- A 100% borosilicate glass fibers without binders

Product Characteristics

Basis Weight	52 g/m²
Thickness	260 µm
Retention range	1.6 µm
Binders	Binder-free
Retention DOP	99,998 %

Ordering information

Product Code	Diameter	Quantity
FP025DFAFAGLFC01	25 mm	100/pk
FP037DFAFAGLFC01	37 mm	100/pk
FP047DFAFAGLFC01	47 mm	100/pk
FP050DFAFAGLFC01	50 mm	100/pk
FP090DFAFAGLFC01	90 mm	100/pk
FP203RFAFAGLFC01	203 x 254 mm	100/pk

Glass Microfiber Filter with Binder (GB10)

Features and Benefits

- A 100% borosilicate glass fibers with binders
- A Organic binders added for increased strength
- A Hydrophobic
- A Can be used in place of GF10 glass microfiber filters
- A Penetration <0.05% (0.3µm at 15 cm/s)

Applications

- A Air sampling to collect atmospheric particulates and aerosols
- A Particle filtration of gases

Product Characteristics

Basis Weight	64 g/m²
Thickness	< 270 µm
Binders	With binders
Maximum Temperature	180°C

Ordering information

Product Code	Diameter	Quantity
FP025DAM64GLFC01	25 mm	100/pk
FP037DAM64GLFC01	37 mm	100/pk
FP047DAM64GLFC01	47 mm	100/pk
FP050DAM64GLFC01	50 mm	100/pk
FP090DDAM64GLFC01	90 mm	100/pk

Quartz Microfiber Filter



GVS Quartz microfiber filters are made with 100% pure quartz microfiber with zero binders. Exhibit greater chemical resistance at high temperatures than glass microfiber. Excellent choice for use in environments with extreme temperature up to 900°C and/or aggressive chemical exposure. Retention loading and air flow permeation similar to glass microfiber filters. Use wherever filters of the highest purity are needed.

Features and Benefits

- Excellent retention of very fine particles.
- Exceptional chemical and thermal resistance.
- Excellent weight and dimensional stability with lowest trace metal content.
- High Permeation enables large volume of air to pass through.
- Higher temperature stability than glass microfiber filters; up to 900°C.
- Excellent chemical stability with practically no filter-mass loss in the presence of acid gases (HCl, SO₂, SO₃, H₂, SO₄, NO and NO₂).

Product Characteristics

Weight	85 g/m ²
Thickness	440 µm
Retention DOP	99.998 %

Ordering information

Product Code	Diameter	Quantity
FP025D0QF1QUFC01	25 mm	100/pk
FP037D0QF1QUFC01	37 mm	100/pk
FP047D0QF1QUFC01	47 mm	100/pk
FP050D0QF1QUFC01	50 mm	100/pk
FP090D0QF1QUFC01	90 mm	100/pk
FP203R0QF1QUFC01	203 x 254 mm	100/pk



Silver Membrane



Silver membranes are composed entirely of 99.97% pure metallic silver. They provide excellent chemical resistance and high temperature characteristics. Orientation of the membrane can be important. There is a distinct difference in surface characteristics with one side appearing shinier than the other. Use the Shinier side upstream for scanning electron microscopy. For all other applications and analytical work use the duller side upstream.

Features and Benefits

- A 99.97% pure silver
- A High temperature resistance
- A High chemical resistance
- A Hydrophilic
- A Economical - can be cleaned and reused
- A Autoclavable

Applications

- A Airborne asbestos fibers by X-Ray diffraction
- A Dissolved Organic Carbons (DOC)
- A Analysis of airborne silica in foundries, glass plants, quarries, mines, ceramic manufacturing
- A Coke oven emissions analysis
- A Carbon and carbon black
- A Coal tar pitch volatiles
- A Fly Ash - high temperature
- A Bromine and Chlorine analysis

Product Characteristics

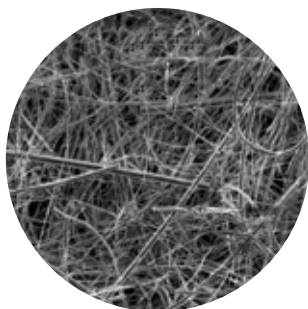
Retention Range	0.22 to 5 µm available
Maximum Temperature	204 °C
Thickness	50 µm

Ordering information

Pore sizes	Dimensions Packaging	25 mm 50/pk	37 mm 25/pk	47 mm 25/pk
	0.45 µm	1145335	1145341	1145347
0.8 µm		1145334	-	1145346



Glass Fiber Filters with or w/o Binder



GVS Glass Fiber membranes are biologically inert, autoclavable and highly resistant to oxidizing agents and weak acids. Glass fiber can be used to extend the life of a final filter as a prefilter or they can be used alone for low cost sample clarification. GVS Glass Fiber membranes with binders are composed of borosilicate glass fibers woven into

a porous matrix and bonded by an acrylic resin. This bonding produces a filter that reduces media migration and has the strength required for high-volume aqueous filtrations. Glass Fiber membranes with a binder are usually recommended for filtrations of long duration under pressure. Glass Fiber membranes without binders are designed for solvent filtration or gravimetric analysis to avoid binder extractables. Filters without binders are recommended for analytical and gravimetric determinations.

Characteristics

- A Acrylic binder
- A High dirt holding capacity
- A Biologically inert
- A Bonding reduces media migration

Product Characteristics: Glass Fiber Filters with Binder

Max operating Temperature	165 °C
1.0 µm G20 Grade: 60 gsm	0.30 mm thick
1.0 µm G20 Grade: 203 gsm	1.14 mm thick

Product Characteristics: Glass Fiber Filters Binderless

Max operating Temperature	500 °C
0.7 µm: 60 gsm	0.44 mm thick
1.0 µm: 56 gsm	0.28 mm thick

Glass Fiber Filters with Binder

Ordering information

Dimensions Packaging	13 mm 100/pk	22 mm 100/pk	25 mm 100/pk	47mm 100/pk	75 mm 25/pk	90 mm 25/pk
Pore sizes 0.5 µm (G15)		1215543	1215544	1215548		1215550
1.0 µm (G20)	1215557		1215559	1215562	1215563	1215564
1.0 µm (G25)	1215571			1215577		1215579

Dimensions Packaging	124 mm 25/pk	142 mm 25/pk	257 mm 25/pk	293 mm 25/pk	24x24 cm 10/pk
Pore sizes 0.5 µm (G15)	1215551	1215553		1215555	
1.0 µm (G20)		1215567		1215569	
1.0 µm (G25)		1215582	1215583		1268603

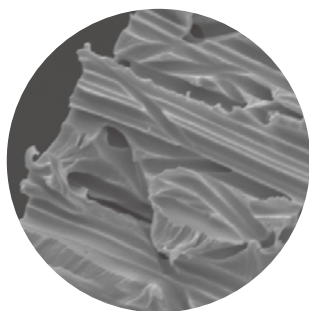
Glass Fiber Filters Binderless

Ordering information

Dimensions Packaging	7 mm 500/pk	25 mm 100/pk	37 mm 500/pk	47 mm 100/pk	90 mm 25/pk	257 mm 100/pk
Pore sizes 0.7 µm	3029939	1215162		1215540	1215541	
1.0 µm (G40)		1213325*	1215588	1215589*	1225509 1212763**	1220678

*500/pk **100/pk

Polycarbonate Track Etched (PCTE) Membrane



Features and Benefits

- ASmooth, thin, glass-like surface is suitable for optical analysis applications
- APVP treated for hydrophilic wetting.
- AResists chemical staining to ease microscopy visualization

Polycarbonate Track Etched (PCTE) Membrane is recommended for TEM and SEM microscopic testing for Asbestos Monitoring.

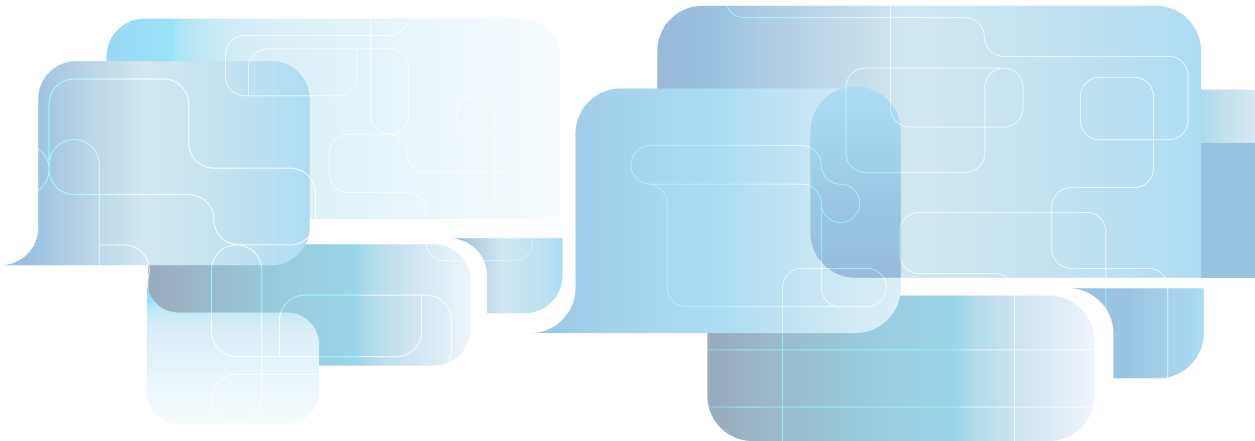
GVS Polycarbonate Track Etched (PCTE) Membrane is made from a thin polycarbonate film with precisely defined pores. The proprietary manufacturing process provides increased control over pore size and density for absolute size separation. This unique process ensures the physical properties of each membrane precisely fit specification.

Product Characteristics

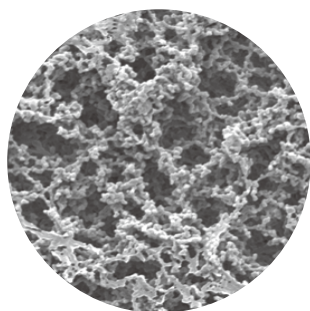
Thickness	8 - 11 µm
Optical Properties	Semi-translucent
Maximum Operating Temperature	284°F (140°C)
Residual Ash Weight Average	0.92 µg/cm²
Sterilization	Gamma Irradiation or Ethylene Oxide (EtO)
Autoclavable	Yes
Wetting Characteristics	Hydrophilic

PCTE Hydrophilic Membrane - Disks
Ordering information

Pore sizes	Dimensions Packaging	25 mm 100/pk	37 mm 100/pk	47 mm 100/pk
	0.2 µm	1215611		1215612
	0.4 µm	1215614	1215615	1215617
	0.8 µm	1215622	1215623	1215624
	1 µm	1215627	1221302	1215628



Mixed Cellulose Esters (MCE) Membrane



- A High loading capacity and flow rate
- A Hydrophilic wetting
- A Unsupported

Recommended for PCM and TEM microscopic testing for Asbestos Monitoring.

GVS Mixed Cellulose Esters (MCE) Membrane provides high flow rate and fast filtration with uniform pore structure for consistent flow and high throughput.

Features and Benefits

Product Characteristics

Sterilization	Gamma Irradiation or Ethylene Oxide (EtO)
USP Class VI testing	Passed
Thickness	100 - 190 µm
Sealing Compatibility	Ultrasonic, Heat, Radio Frequency and Insert Molding
Pore Size Range	0.22 to 0.8 µm

Ordering information

Pore sizes	Dimensions Packaging	25 mm 100/pk	37 mm 100/pk	47 mm 100/pk	90 mm 25/pk
	Color	white	white	white	white
0.22 µm		1214898		1214909	1214941
0.45 µm		1215263	1215272	1215281	1215305
0.8 µm		1215425	1215426	1215428	1215431



BAM Filter Paper

for continuous particulate monitoring

ABAM Filter Paper is a roll type glass fiber filter specially designed for BAM (Beta-ray Attenuation Monitoring) instruments. Its length of 21m is designed to last 60 days and 31m is designed to last 90 days.

ABAM Filter Paper is reliable and has been used for beta-ray attenuation monitoring for over 30 years around the world.



Specifications

Product Code	FA021RFAFAGLFC01	FA031RFAFAGLFC01
Weight	49 ± 7 g/m ²	49 ± 7 g/m ²
Thickness	0.14 ± 0.03 mm	0.14 ± 0.03 mm
Pressure Drop	≤ 20.0 kPa	≤ 20.0 kPa
Collection Efficiency (0.3µm DOP)	≥ 99.9 %	≥ 99.9 %
Tension	≥ 7.8 N	≥ 7.8 N
Repellency	≥ 4.9 kPa	≥ 4.9 kPa
Loss on Heat	10.0 ± 2.0 %	10.0 ± 2.0 %
Filter Size	30 mm × 21 m	30 mm × 31 m
Size Margin	Length: 21 m + 2 m, Width: 30 mm ± 0.5 mm	Length: 31 m + 2 m, Width: 30 mm ± 0.5 mm
Core Diameter	40.5 mm ± 0.5 mm	40.5 mm ± 0.5 mm
Origin	Made in Italy	Made in Italy

Specifications, and appearance described in this document are based on information as of May, 2019. They are subject to change without notice for improvement of the product. The color of actual products may differ to that of color in this data sheet.



Extraction thimbles

GVS extraction thimbles are manufactured in three versions:

- A High purity cellulose
- A Pure borosilicate glass microfiber
- A High purity quartz microfiber

The extraction thimbles are suitable for Soxhlet type, Tecator type or similar devices.

They are located in the extractor body, used to accommodate a sample of solid material to extract certain components out, with the addition of an appropriate solvent.

1. Cellulose extraction thimbles

GVS high-quality cellulose extraction thimbles are made from high-alpha cellulose cotton linters with rounded bottom.

Features

Manufactured in high-alpha cellulose cotton linters

Strong mechanical structure and retentivity

Maximum working temperature 120°C

Tolerances according to DIN 12449:

- Internal diameter $\pm 0/-3\text{mm}$
- Thimble height $\pm 1\text{mm}$
- Wall thickness $\pm 0.5\text{mm}$
- Ash content $< 0.1\%$

Applications

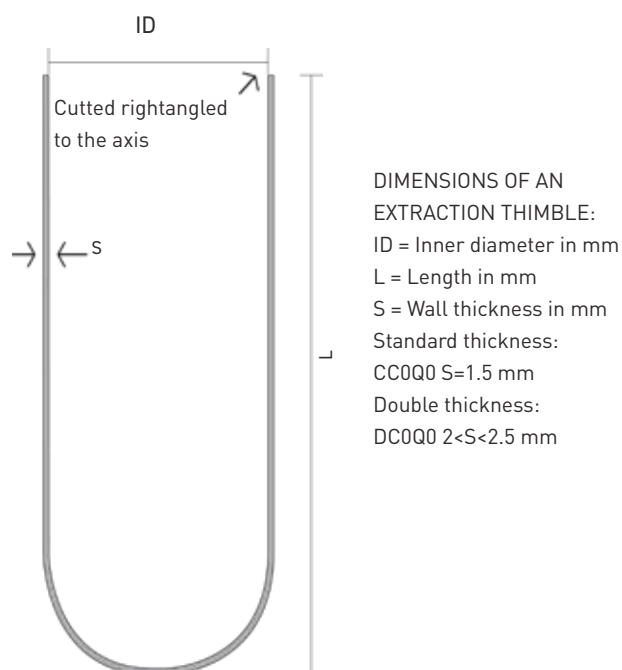
Fat extraction in foodstuffs, paints and varnishes

Extraction of polymers

Determination of environmental pollutants

They are usually used in extractors of the "Soxhlet", "Tecator" or similar types, in order to collect solid material from which components must be separated out by dissolving in a suitable solvent

The thimbles size selection should be done carefully to fit extractors correctly. The references sizes are internal diameter and the length in mm (an extra allowance for wall thickness should be added when selecting external diameters)



Environmental Monitoring

Ordering information. Standard Thickness (1-1.5 mm)

(*) Size (mm) Int x Length	Product Code	(*) Size (mm) Int x Length	Product Code	(*) Size (mm) Int x Length	Product Code
25 Thimlbes/Box		25 Thimlbes/Box		25 Thimlbes/Box	
16x100	ET16100CC0Q00	27x80	-	35x100	-
19x90	ET19090CC0Q00	27x100	-	35x150	ET35150CC0Q00
20x80	ET20080CC0Q00	28x22	ET28022CC0Q00	40x100	-
22x60	ET22060CC0Q00	28x100	ET28100CC0Q00	40x123	-
22x65	-	30x77	-	43x123	ET43123CC0Q00
22x80*	ET22080CC0Q00	30x80	ET30080CC0Q00	48x125	-
22x90	-	30x100	ET30100CC0Q00	50x160	ET50160CC0Q00
22x100	-	33x80	ET33080CC0Q00	52x180	-
25x60	ET25060CC0Q00	33x94	ET33094CC0Q00	53x145	-
25x80	ET25080CC0Q00	33x100	ET33100CC0Q00	58x180	-
25x100	ET25100CC0Q00	33x118	ET33118CC0Q00	60x80	-
26x60	ET26060CC0Q00	35x50	-	60x120	-

(*) Other sizes available under request.

Ordering information. Double Thickness (2-2.5 mm)

(*) Size (mm) Int x Length	Product Code	(*) Size (mm) Int x Length	Product Code
25 Thimlbes/Box		25 Thimlbes/Box	
19x90	ET19090DC0Q00	33x94	ET33094DC0Q00
22x65	-	33x100	ET33100DC0Q00
22x80	ET22080DC0Q00	35x100	ET35100DC0Q00
22x90	-	60x80	ET60080DC0Q00
25x100	ET25100DC0Q00	60x120	ET60120DC0Q00
28x100	ET28100DC0Q00	68x250	-
30x100	ET30100DC0Q00	75x160	ET75160DC0Q00
33x80	ET33080DC0Q00	90x180	ET90180DC0Q00

(*) Other sizes available under request.

Equivalence Table

GVS	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
CC0Q0	2800	603	MN 645	Grade 30
DC0Q0	2810	-	MN 645 F	-

2. Glass microfiber thimbles

GVS high-quality glass microfiber thimbles are made from 100% pure borosilicate fibers. They have special advantages since no binders of any kind are used in their manufacture process.

They are particularly suitable when solvents that are incompatible with cellulose thimbles are present.

Features

Manufactured in 100% pure borosilicate fibers without binders

High loading capacity

High retention of very small particles

High air permeability

Good stability in high temperature. Maximum working temperature 500°C

Tolerances for GF0Q0 glass microfiber thimbles:

- Internal diameter +1/-3mm
- Thimble height ±1mm
- Wall thickness 2 ±0.5mm

Applications

Extraction of solvents which are not compatible with cellulose cotton linter

Gas emission controls for industrial chimneys

Gravimetric testing for dust in hot gases

Technical Specifications

Grade	Retention Dop (*) (%)	Maximum Temperature (°C)	Binder
GF0Q0	99.998	500	NO

Ordering information

(*) Size (mm) Int x Length	Product Code	(*) Size (mm) Int x Length	Product Code
25 Thimbls/Box		25 Thimbls/Box	
19x90	ET19090GF0Q00	33x80	ET33080GF0Q00
22x80	ET22080GF0Q00	33x94	ET33094GF0Q00
25x100	ET25100GF0Q00	35x150	ET35150GF0Q00
26x60	-	43x123	ET43123GF0Q00
30x100	ET30100GF0Q00	58x180	-

(*) Other sizes available under request.

Equivalence Table

GVS	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
Grade	603g	603g	649	Grade 40



3. Quartz microfiber thimbles

GVS quartz microfiber thimbles are made from high purity quartz microfiber. These thimbles are able to withstand high temperatures (up to 900°C), and meet the highest requirements for purity, specially because of their low heavy metal content.

Features

Manufactured in high-purity quartz microfiber filters (SiO₂) free of binding elements or additives

High loading capacity

High retention of very small particles

High air permeability

Good stability in high temperature. Maximum working temperature 900°C

Tolerances for QZ0Q0 micro-quartz thimbles:

- Internal diameter +0/-3mm
- Thimble height ±1mm
- Wall thickness 2 ±0.5mm

Applications

Gas emission controls for industrial chimneys

Gravimetric testing for dust in hot gases

Determination of environmental pollutants

Extraction in highly concentrated acid or alkaline solutions

Technical Specifications

Grade	Retention Dop (*) (%)	Maximum Temperature (°C)	Binder
QZ0Q0	99.998	900	NO

Ordering information

(*) Size (mm) Int x Length	Product Code
25 Thimbles/Box	
25x100	ET25100QZ0Q00
30x100	ET30100QZ0Q00
35x150	-
43x123	ET43123QZ0Q00

(*) Other sizes available under request.

Equivalence Table

GVS	Equivalent 1	Equivalent 2	Equivalent 4
QZ0Q0	603q	603q	MK 360

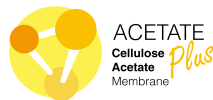
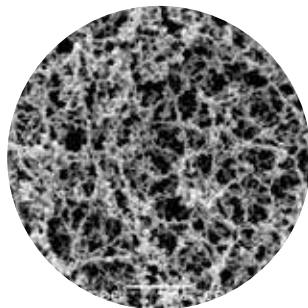


Disc and Sheet Membranes

Product collection



Cellulose Acetate (CA) Membrane



GVS Cellulose Acetate (CA) Filtration Membrane is a supported, hydrophilic membrane that is naturally low binding. It is ideal for use in filtration applications where maximal recovery of protein is critical.

Exceptional Strength for Improved Performance

GVS CA Filtration membranes are composed of pure cellulose acetate that is internally supported by an inert polyester web. This web gives each membrane exceptional strength to prevent cracking, tearing, breaking and distortion when handled or creased. The resulting membrane has dimensional stability that can withstand autoclaving or steam sterilizing leaving the membrane unaffected in temperatures up to 135°C (274°F). The exceptional dimensional strength and low binding characteristics of GVS CA Filtration Membranes provides higher throughputs than competitive offerings and reduces the amount of filter changes needed during proteinaceous solution filtering. Its uniform pore size and consistent flow rates ensure reliable performance.

Performance

Pore Size (µm)	Flow Time (s)	Volume/Vacuum (mL/ in Hg)	Flow Rate (mL/min/cm ² @ 10psi)	Bubble Point (psi)
0.22	70-155	250/20	10.26-22.72	50-72
0.45	20-49	250/20	32.46-79.53	30-45
0.65	15-40	250/20	39.77-106.04	18-32
0.8	13-36	250/20	44.18-122.36	14-28
1.2	40-248	500/5	51-318	11-22
5.0	23-59	500/5	216-553	6-16

Ordering information

Dimen- sions Packaging	13 mm 100/pk	25 mm 100/pk	47 mm 100/pk	50 mm 100/pk	90 mm 25/pk	102 mm 25/pk	142 mm 25/pk	293 mm 25/pk	20x20 mm 5/pk	30 cmx 3m 1/pk
Pore sizes	0.22 µm	1212374	1213124	1213804	1221730	1214357	1215074	1215427		1224211
	0.45 µm	1215533	1215635	1215676	3052874	1212375	1221546	1212517	1212620	1240382
	0.65 µm		1212846	1212942		1213037				3061196
	0.8 µm	1213305		1213358				1213316	3034974	3034975
	1.2 µm			1213805			1213958	1214038		3041202
	5.0 µm		1214370	1214411		1212648				3049247

Features & Benefits

- ASuperior strength: Can withstand aggressive handling or be used with automated equipment without breaking or tearing
- ALow extractables: Ensures tests will be clean with consistent results
- AHydrophilic: Wets out rapidly
- ALot-to-lot consistency: Quality checks ensure consistent flow and diffusion rates for dependable results every time
- ANonlysing of cells: Prevents contamination of critical solutions
- ACan be autoclaved or steam sterilized

Typical Applications

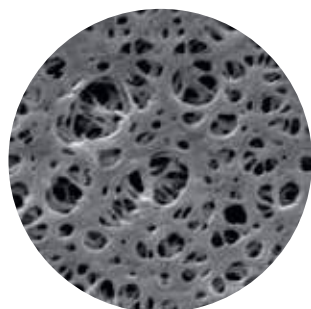
- AProtein and enzyme filtration
- ABiological fluid sterilization
- ATissue culture media sterilization
- ACold sterilization

Product Characteristics

USP Class VI testing	Passed
Thickness	65 - 100 µm
Maximum Operating Temperature	274°F (135°C)
Sealing Compatibility	Ultrasonics, Heat, Radio Frequency and Insert Molding
Pore Size Range	0.22 to 5.0 µm



Polyethersulfone (PES) Membrane



GVS Polyethersulfone (PES) Filtration Membrane is hydrophilic and cast from pure polyethersulfone polymer. It is designed to remove particulates during general filtration and its low protein and drug binding characteristics make it ideally suited for use in life science applications.

Product Uniformity and High Sensitivity Maximize Performance

This strong, microporous film asymmetric membrane is constructed from a high-temperature polyethersulfone polymer that is acid and base resistant. Its strength and durability are advantageous during usage that involves aggressive handling or automated equipment. GVS PES Filtration Membrane is naturally hydrophilic without added wetting agents and has low extractables.

Due to its inherent uniform porosity and controlled pore size, GVS PES Filtration Membrane efficiently removes particulates from solutions during general filtration. Additionally, its low protein and drug binding characteristics maximize recovery of critical drugs used in I.V. therapy, chemotherapy and open-heart surgery.

Features & Benefits

- A**Hydrophilic: Eliminates the need for wetting agents that can potentially interfere with analyses
- A**Low extractables: Ensures test results will not be compromised by wetting agents or other extractables
- A**Low drug and protein binding: Maximizes recovery of critical drugs or proteins
- A**Wide range of pore sizes: Pore size range of 0.03 μm to 8.0 μm enables specific pore size selection for given applications
- A**Superior burst strength: Protects the integrity of the membrane under high pressure
- A**Lot-to-lot consistency: Quality checks, both down and across the membrane, ensure dependable results every time

Typical Applications

- A**Protein and enzyme filtration and sterilization
- A**Biological fluid filtration and sterilization
- A**Pharmaceutical sterilization
- A**Environmental water studies

Performance

Pore Size (μm)	Flow Time (s)	Volume/Vacuum (mL/ in Hg)	Flow Rate (mL/min/ cm^2 @ 10 psi)	Bubble Point (psi)
0.03	200-500	250/20	3.18-7.95	90-110
0.1	100-200	250/20	7.95-15.91	70-90
0.2	35-70	250/20	22.72-45.45	50-70
0.4	20-40	250/20	39.77-79.53	35-50
0.6	12-25	250/20	63.63-132.55	21-32
0.8	80-160	500/5	80-159	13-28
1.2	65-130	500/5	98-196	11-22

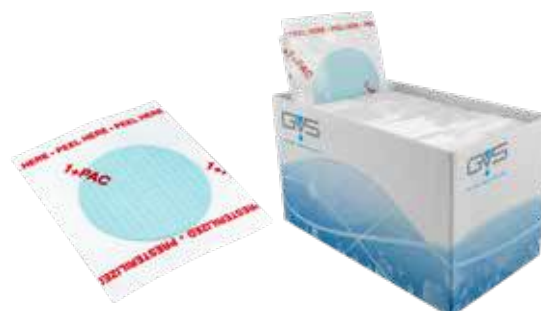
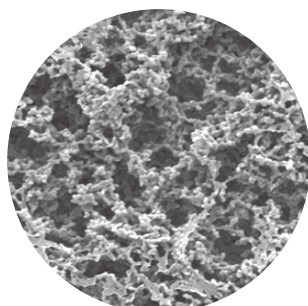
Ordering information

Dimensions Packaging	13 mm 100/pk	25 mm 100/pk	47 mm 100/pk	47 mm 200/pk	90 mm 25/pk	142 mm 25/pk	293 mm 25/pk	200x200 mm 5/pk	30 cmx3 m 1/pk
0.03 μm	3032875	3032876	3029505		3018505			1235748	3057106
0.1 μm			1214756		1222230			1225881	3026365
0.22 μm		1214193	1214465	1226158*	1214920	1214169	1214759	1223871	1226664
0.45 μm		1214532	1214475	1226159*	1215368	1214170	1214760	1225882	1226665
0.65 μm		1215238					1224490	1225883	1225985
0.8 μm		1214604	1214568		1214669	1214171		1225884	3037376
1.2 μm		1222267	1221008		1224492			1223340	1242278
5.0 μm			1215396		1224496			1236292	
8.0 μm								1225885	

*Sterile



Mixed Cellulose Esters (MCE) Membrane



GVS Mixed Cellulose Esters (MCE) Filtration Membrane is an unsupported, hydrophilic membrane. Its rapid flow rate and high throughput make it ideal for use in diagnostic kit manufacturing applications.

Characteristics

- A High flow rate: fast filtration rates
- A Uniform pore structure: consistent flow and diffusion rates
- A Lot-to-lot consistency

Typical Applications

- A Aqueous filtration
- A Sterility testing
- A Gravimetric analysis with ashing technique
- A Microbiological and particulate analysis
- A Black for food and beverage applications

Consistent Uniformity Improves Control and Performance

GVS MCE Filtration Membranes are composed of a mixture of inert cellulose nitrate and cellulose acetate polymers. The uniform microporous structure of these filters provides the fastest flow rates and highest throughputs available in a membrane filter. Because they are biologically inert, GVS MCE Filtration Membranes are ideal for a wide range of

clarification, sterilization and analytical applications such as: microbiological analysis, clarification or sterilization of aqueous solutions, industrial hygiene applications, silt density index and particulate-matter analysis. For gravimetric analysis using ashing techniques, GVS MCE Membranes yield a residue or less than 0.045% of their initial weight. They are hydrophilic with a noncytotoxic wetting agent and yield extractable levels of less than 4% of their weight. These membranes are autoclavable at 121°C (250°F) for 20 minutes. Sterilized product lifetime is 24 months from sterilization date.

Product Characteristics

Sterilization	Gamma Irradiation or Ethylene Oxide (EtO)
USP Class VI testing	Passed
Thickness	100 - 190 µm
Sealing Compatibility	Ultrasonic, Heat, Radio Frequency and Insert Molding
Pore Size Range	0.1 to 8.0 µm
BSA Protein Binding	Approx. 160 µg/cm ² (depending on pore size)
Maximum Operating Temperature	356°F (180°C)

Performance

Pore Size (µm)	Flow Time (s)	Volume/Vacuum (mL/ in Hg)	Flow Rate (mL/min/cm ² @ 10psi)	Bubble Point (psi)
0.1	198-263	250/20	6.05-8.03	80-110
0.22	60-136	250/20	11.70-26.51	52-65
0.45	23-46	250/20	34.58-69.16	30-42
0.65	13-35	250/20	45.45-122.36	25-42
0.8	5-18	250/20	88.37-318.13	11-19
1.2	30-80	500/5	159-424	9-18
5.0	13-36	500/5	353-979	6-15
8.0	3-25	500/5	509-4242	4-11

Disc and Sheet Membranes

Mixed Cellulose Esters membrane - Sterile, white and black

Ordering information

	Individually Packaged Without Pad Gridded				
Dimensions Packaging	47 mm 100/pk	47 mm 100/pk	47 mm 1000/pk	47 mm 1000/pk	50 mm 1000/pk
Color	white	black	white	black	white
Pore sizes	0.22 µm	1216720	1214396		
	0.45 µm	1216721	1216719	1214923	1213643 1222980
	0.7 µm		1216718	1221948	

Cellulose Mixed Esters - Non sterile, white and black

Dimensions Packaging	13 mm 100/pk	25 mm 100/pk	25 mm Gridded 100/pk	25 mm 100/pk	25 mm Gridded 100/pk
Color	white	white	white	black	black
Pore sizes	0.1 µm	1214527			
	0.22 µm	1214882	1214898		
	0.45 µm	1215257	1215263		
	0.65 µm		1215376		
	0.8 µm	1215424	1215425	1215419	1215415 1215411
	1.2 µm	1215438	1215440	1215435	
	5.0 µm	1215448	1215450		
	8.0 µm		1215455		

Dimensions Packaging	47 mm 100/pk	47 mm Gridded 100/pk	47 mm 100/pk	47 mm Gridded 100/pk	90 mm 25/pk
Color	white	white	black	black	white
Pore sizes	0.1 µm	1214533			
	0.22 µm	1214909	1214839		1214941
	0.45 µm	1215281	1215207	1214977	1215305
	0.65 µm	1215380			
	0.8 µm	1215428	1215421	1215416	1215412 1215431
	1.2 µm	1215441	1215437		1215442
	5.0 µm	1215451			1215452
	8.0 µm	1215456		3053377	1215027

Dimensions Packaging	142 mm 25/pk	293 mm 25/pk	20x20 cm 5/pk	20x20 cm 5/pk
Color	white	white	white	black
Pore sizes	0.1 µm	1214554	1214565	
	0.22 µm	1214950	1214959	1215464
	0.45 µm	1215316	1215323	1225781 3053082
	0.65 µm			
	0.8 µm	1215432	1215433	3050851
	5.0 µm	1215453		
	8.0 µm	1221955		



Speed Pack Sterile MCE Membrane Perforated Ribbons

SPEED PACK



GVS Speed Pack folded ribbons provide the user with the same quality and reliability as the GVS individually packed MCE membranes. The folded ribbons provide hands-free convenience, reduce laboratory time and boost lab efficiency. Speed Pack have ribbons designed for use with most popular membrane dispensers.

Packaged in 150 count ribbons are available to order in pack size of 150 or 600 (4 x 150). Select either gridded white or black sterilized membranes in a continuous folded ribbon for easy dispensing and convenience.

GVS MCE sterile filtration membranes are ideally used for the microbiological culturing and examination of water, beverages, beer, wine, juices, waste water, pharmaceuticals, food and other critical applications. It boosts a rapid flow rate and high throughput for consistent and uniform results.

- A Available in 0.2 μm , 0.45 μm and 0.8 μm pore sizes
- A Available in White or Black membranes with gridded surfaces
- A Pre-sterilized (gamma irradiation) and ready to use product
- A Comes in box of 150 count
- A Sold in packs of 150 or or 600 (4 x 150), 47 mm. For 50 mm size please contact GVS sales team

- A Compatible with various dispensers (Microsart E-Motion, EZ-Pak, EZ-Pak Curve, Whatman Membrane-Butler)
- A Individually sealed filters are printed with the membrane specification and lot number on the clear cover of each sealed filter
- A Membranes are numbered from 1 to 150 to maintain control of the ribbon progressive usage

White MCE membranes with Black Grids are widely used for general purpose examination and enumeration of microorganisms. Commonly used for water, waste-water, pharmaceutical, medical, food and beverage analysis. The contrasting grid lines facilitate counting of colonies.

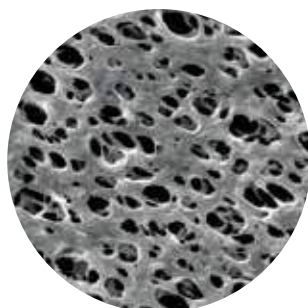
Black MCE with White Grids provide color contrast between the filter and white or beige microorganisms without the need for counter-stain. Commonly used for bottled water, carbonated beverages, beer and wine analysis. The contrasting grid lines facilitate counting of colonies.

Speed Pack Ribbons of Membranes

Mixed Cellulose Esters (MCE) membrane, Sterile Ordering information

Dimensions Packaging	47 mm 150/pk	47 mm 150/pk	47 mm 600/pk	47 mm 600/pk
Color	white	black	white	black
0.2 μm	SPNCW02BG47S	on demand	SPNCW02BG47S6	on demand
0.45 μm	SPNCW04BG47S	SPNCB04WG47S	SPNCW04BG47S6	SPNCB04WG47S6
0.8 μm	SPNCW08BG47S	SPNCB08WG47S	SPNCW08BG47S6	SPNCB08WG47S6

Nylon 66 (NY) Membrane



MAGNA
Nylon Membrane

Description and Use

GVS Nylon Filtration Membrane is a supported, naturally hydrophilic membrane designed to wet out evenly and retain its superior strength during use in general filtration or medical assays.

Versatile Capabilities, Consistent Performance

GVS Nylon Filtration Membrane is internally supported with an inert polyester support web giving it added dimensional strength and stability that prevents cracking, tearing, curling and breaking. This added strength and durability is advantageous during usage that involves aggressive handling or automated equipment.

A naturally hydrophilic membrane, GVS Nylon Filtration

Membrane does not require wetting agents that can interfere with biological processes.

Features & Benefits

- A**Hydrophilic: Eliminates the need for wetting agents that can potentially interfere with biological processes
- A**Super strength: Eases handling when used with automated equipment
- A**Low extractables: Ensures tests will be clean and pure leading to more consistent results
- A**Lot-to-lot consistency: Quality checks ensure lot-to-lot consistency, both down and across the polyester web, for dependable results every time

Typical Applications

- A**Sterilization and clarification of aqueous and organic solvent solutions
- A**HPLC sample preparation

Product Characteristics

Sterilization	Steam, Gamma Irradiation or Ethylene Oxide (EtO)
USP Class VI toxicity	Passed
Thickness	65 - 125 μ m
Maximum Operating Temperature	356°F (180°C)
Sealing Compatibility	Ultrasonics, Heat, Radio Frequency and Insert Molding
Pore Size Range	0.1 to 5 μ m

Performance

Pore Size (μ m)	Flow Time (s)	Volume/Vacuum (mL/ in Hg)	Flow Rate (mL/min/cm ² @ 10 psi)	Bubble Point (psi)
0.1	300-553	250/20	2.88-5.30	70-100
0.2	113-255	250/20	6.24-14.08	50-72
0.4	44-84	250/20	18.94-36.15	30-45
0.6	18-48	250/20	33.14-88.37	18-32
0.8	13-37	250/20	42.99-122.36	13-28
1.2	40-248	500/5	51-318	11-22
3.0	33-100	500/5	127-386	8-16
5.0	28-57	500/5	223-454	6-13



Disc and Sheet Membranes

Nylon 66 (NY) Membrane, white

Ordering information

	Dimensions Packaging	13 mm 100/pk	25 mm 100/pk	37 mm 100/pk	47 mm 100/pk	47 mm 1000/pk	47 mm Gridded 100/pk
Pore sizes	0.1 µm	1213760	1213761		1213762	3026917*	
	0.22 µm	1213766	1213768		1213769		
	0.45 µm	1213774	1213775		1213776		1213825
					1220671*		1213845
	0.65 µm		1213782		1213783		
	0.8 µm	1213788	1213789	1214881	1213790		3013826
	1.2 µm	1213794	1213796	1230356	1213797		1214880
	5.0 µm	1213810	1213811		1213812		3048260

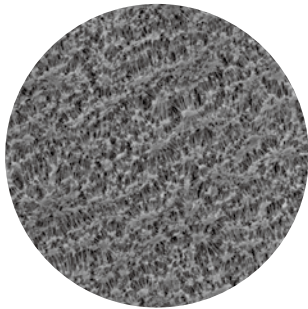
*sterile

	Dimensions Packaging	90 mm 25/pk	142 mm 25/pk	293 mm 25/pk	200x200 mm 5/pk	30 cm x3 m 1/pk
Pore sizes	0.1 µm	1213763	1213764	1213765	1222859	1241477
	0.22 µm	1213770	1213771	1213772	1222858	1224690
	0.45 µm	1213778	1213779	1213780	1222857	1225982
	0.65 µm	1213784	1213786		1222856	3052148
	0.8 µm	1213791	1213792	1213793	1222855	
	1.2 µm	1213798	1213799	1213800	1222854	1214956
	5.0 µm	1213813	1213815	1213816	1222851	1221441

*sterile



Polytetrafluoroethylene (PTFE) Membrane



GVS Laminated PTFE filters are made of a polytetrafluoroethylene polymer (PTFE) laminated to a polypropylene support for improved durability and easy handling. These filters are chemically compatible with strong acids and most aggressive solvents such as alcohols.

PTFE (fine powder resin) is expanded into a 3-dimensional web-like structure called PTFE which creates billions of microscopic pores. This structure utilizes the inherent hydrophobic (water-resistant) and non-stick nature of PTFE to allow removal of particulate captured on the membrane surface. This allows air to pass easily through the membrane

while collecting particulate as small as 0.1 micron on its surface. PTFE membranes provide device manufacturers with a consistent, temperature and chemical compatible barrier to microbes and particulate matter. The optimal combination of air flow and water entry pressure adds value to most device designs.

Inherently hydrophobic, PTFE membranes will not absorb moisture from air or gases, making it ideal for venting applications, phase separations and aerosol samplings.

Laminated PTFE filters can be used to filter aqueous solutions when prewetted with methanol.

They are autoclavable up to 130°C (260°F).

Features & Benefits

- ANaturally hydrophobic
- ACompatible with strong acids and aggressive solutions
- AImproved durability and handling
- AAutoclavable

Typical Applications

- AFiltration of strong acids and aggressive solutions
- AVenting applications
- APhase separations
- AAerosol samplings

Performance

Pore Size (µm)	Bubble Point (EtOH) (kPa)	Flow Time (MeOH) (sec)	Thickness (µm)
0.22	107.9 -152.0	80 -140	100 -180
0.45	63.7-103.0	40 - 75	100 -180

Ordering information

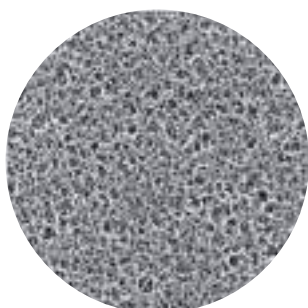
Pore sizes

Dimensions Packaging	90 mm 25/pk	142 mm 25/pk	293 mm 25/pk	200x200 mm 5/pk	305x305 mm 50/pk
0.22 µm	1215488	1215489		3026028	1267681
0.45 µm	1215494	1215495	1215496	1237423	3034300
1.0 µm	1215505	1215506			1235299

Pore sizes



Regenerated Cellulose (RC) Membrane



Features & Benefits

- AHydrophilic
- AExcellent chemical compatibility and resistance to organic solvents
- ALow non-specific adsorption
- ASuperior thermal resistance
- AHigh mechanical strength
- AMaximum Operating Temperature 134°C

Typical Applications

- AFiltration of Aqueous and Organic Solutions
- AParticle removal from organic solvents or mixtures of aqueous and non-aqueous samples
- AUltra-cleaning and de-gassing solvents and mobile phases for HPLC
- AClarification
- AProtein Chemistry

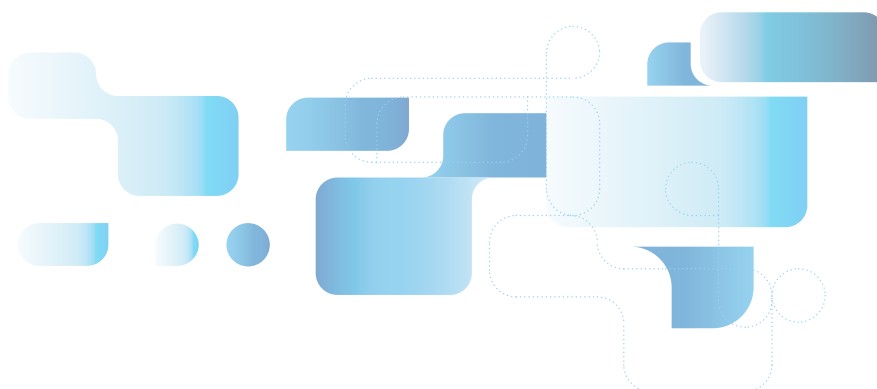
GVS Regenerated Cellulose membrane is a hydrophilic high strength media. Regenerated Cellulose filters have a broad solvent compatibility, and they contribute very low extractable material in a wide variety of sample solvents. Thus, they are appropriate for sample preparation in many applications and as a standalone or syringe filter membrane. This membrane media can be sterilized by all common methods keeping a mechanical stability. The superior strength assures an high chemical resistance for usage with a wide range of aqueous and organic media.

Performance

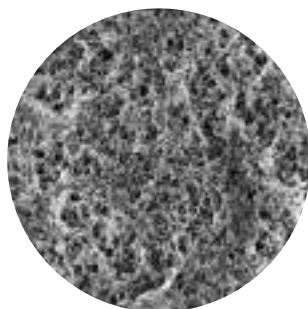
Pore Size (μm)	Typical Flow Rate (mL/min/cm ² @ 10 psi)	Typical Bubble Point (psi)	Typical Thickness (μm)
0.22	10.3	63.8	≥ 145
0.45	20.6	42.1	≥ 145

Ordering information

Pore sizes	Dimensions	25 mm	47 mm
	Packaging	100/pk	100/pk
0.22 μm		3099756	3099758
0.45 μm		3099757	3099755



Polyvinylidene Fluoride (PVDF) Hydrophilic Membrane



GVS Hydrophilic Polyvinylidene Difluoride (Hydrophilic PVDF) Filtration Membrane is a supported, hydrophilic membrane that exhibits broad chemical compatibility and low protein binding. Composed of PVDF internally supported by an inert polyester web, the resulting membrane has dimensional stability. This provides higher throughputs than competitor offerings and reduces the amount of filter changes needed during filtration. It is ideal for use in filtration applications of biological solutions.

This hydrophilic membrane has a great thermal stability with maximum operating temperature of 175°F and it is autoclavable.

- ▲ Superior strength to withstand aggressive handling or use with automated equipment without breaking or tearing
- ▲ Low protein binding minimizes retention of proteins in solution
- ▲ Low extractables ensure tests will be clean with consistent results
- ▲ Lot-to-lot consistency ensures consistent flow and diffusion rates for dependable results every time

Typical Applications

- ▲ Sterilizing clarification of biological solutions.
- ▲ Preparation of protein-containing solutions prior to chromatography or other instrumental analyses.
- ▲ Useful for a wide range of applications, including aggressive and non-aggressive solvent-based mobile phase.
- ▲ Offers excellent chemical compatibility, even with aggressive acids and alcohols.
- ▲ Provides high flow rates and throughput, low extractables and broad chemical compatibility.
- ▲ Better protection of your analytical results.

Features & Benefits

Performance

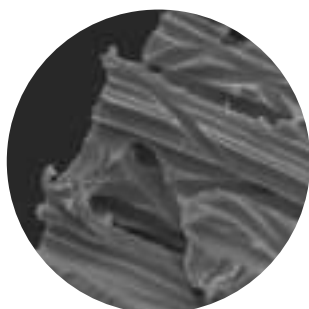
Pore Size (μm)	Typical Flow Rate (mL/min/cm ² @ 10 psi)	Typical Bubble Point (psi)	Typical Thickness (μm)
0.22	7	36	170
0.45	29	22	170

Ordering information

Pore sizes	Dimensions	25 mm	47 mm	90mm
	Packaging	100/pk	100/pk	25pk
0.22 μm		3044272	3044270	3044271
0.45 μm		3037802	3037800	3037801



Polycarbonate Track Etched (PCTE) Membrane



PORETICS
PCTE Membrane

GVS Polycarbonate Track Etched (PCTE) Membrane is made from a thin polycarbonate film with precisely defined pores. It is ideally suited for use in cellular-based filtration assays as well as filtration applications where high purity is required. The membrane is produced through a two-step, proprietary manufacturing process that employs high quality standards. In the first step, polycarbonate film is exposed to ion particles that pass through it. As the ions pass through the film, they create "tracks" where the polymer is damaged. The beamed film is then exposed to a chemical that etches out the tracks creating precise, cylindrical pores. Pore density is controlled by the number of tracks per unit area, and pore size is controlled by varying the temperature, strength and time of exposure to the etching solution. This unique process allows for increased control over pore size and density to ensure the physical properties of each membrane precisely fit your specifications. The resulting membrane is a thin, translucent polycarbonate film with a smooth, flat surface. All particles larger than the pore size are captured on its surface. GVS offers a unique solution for Legionella analysis following the new standard UNI EN ISO 11731. Our sterile gridded membranes are suitable for this test and give you the best performances.

GVS offers the PCTE Membrane for AOX use (adsorbable organic halogens) with exceptionally low protein-binding/
Nominal Product Characteristics

Thickness	5 - 20 µm
Refractive Indices	Birefringent at 1.584 and 1.625
Water Adsorption (% wt. gain 24-hr immersion)	0.24%
Residual Ash Weight Average	0.92 µg/cm ²
Specific Gravity	0.94-0.97
Autoclavable	Yes
Leachables	Negligible
Wetting Characteristics	Hydrophilic or Hydrophobic
Wetting Agent (hydrophilic)	Polyvinylpyrrolidone (PVP)
Burst Strength Minimum	0.7 bar (10 psi)
Migration of Filter Media	0
Optical Properties	Semi-translucent

extractable levels and precisely defined pores. These AOX-certified polycarbonate (PCTE) membranes are ideally suited for the detection of man-made pollution in groundwater and wastewater (organic halide adsorption determination).

To optimize the suitability of PCTE, we offer a variety of products with unique characteristics:

PVP (polyvinylpyrrolidone)-treated for a hydrophilic membrane

AOX-certified for applications requiring extremely low extractables

Black-dyed membrane for staining applications

PVP-free for a hydrophobic membrane

Characteristics

- A Absolute pore size and density allows for precise size separation
- A Direct thickness and pore size measurements provide accurate characteristics
- A Smooth, thin, glass-like surface is suitable for microscopy and cellular applications
- A Superior strength allows for aggressive handling
- A Low protein binding ensures clean results
- A Resists chemical staining to ease microscopic visualization
- A Passes USP VI Class toxicity testing for use

Typical Applications

- A General filtration
- A Legionella test (UNI EN ISO 11731_2017)
- A Removal of red blood cells from plasma
- A Flow control of reagents through assays
- A Precise filtration and prefiltration
- A Fuel testing
- A Cytology
- A Microscopy

Product Characteristics

Sterilization	Gamma Irradiation or Ethylene Oxide (EtO)
USP Class VI Testing	Passed
Extractables	Very Low
BSA Protein Binding	5 µg/cm ²
Maximum Operating Temperature	284°F (140°C)
Sealing Compatibility	Ultrasonic, Heat, Radio Frequency and Insert Molding
Pore Size Range	0.05 to 20 µm

Disc and Sheet Membranes

Performance Characteristics

Pore Size (a) (μm)	Pore Density (b) (pores/cm ²)	Nominal Thickness (c) (μm)	Min. Bubble Point (d) (psi)	Typical Flow Rates		
				Water (e) (mL/min/cm ²)	Air (L/min/cm ²)	
20	4 x 10 ⁴	3	1	1000	11 (g)	(a) Tolerance + 0%, -20%
14	5 x 10 ⁴	6	0.2	1400	63.5 (g)	(b) Tolerance + / - 15%
12	1 x 10 ⁵	8	0.4	1250	63.5 (g)	(c) Tolerance + / - 10%
10	1 x 10 ⁵	10	0.5	1150	34.5 (g)	(d) Measured using Isopropanol (IPA)
8	1 x 10 ⁵	7	0.7	1000	30 (g)	(e) Initial flow rates using prefiltered water at 10 psid (0.7 kg/cm ²)
5	4 x 10 ⁵	10	1.2	700	30 (g)	(f) Initial flow rates using prefiltered air at 10 psid (0.7 kg/cm ²)
3	2 x 10 ⁶	9	2	440	37.5 (g)	(g) Initial flow rates using prefiltered air at 5 psi (0.35 kg/cm ²)
2	2 x 10 ⁶	10	3	300	16.5 (f)	
1	2 x 10 ⁷	11	6	130	20 (f)	
0.8	3 x 10 ⁷	9	7	90	18 (f)	
0.6	3 x 10 ⁷	9	9	60	7.5 (f)	
0.4	1 x 10 ⁸	10	12	33	7.5 (f)	
0.2	3 x 10 ⁸	10	20	10	3 (f)	
0.1	4 x 10 ⁸	6	30	2.5	1.5 (f)	
0.08	4 x 10 ⁸	6	38	0.6	0.75 (f)	
0.05	6 x 10 ⁸	6	50	0.4	0.37 (f)	
0.03	6 x 10 ⁸	6	NA	0.2	0.075 (f)	
0.01	6 x 10 ⁸	6	NA	0.1	0.0075 (f)	

PCTE AOX Hydrophilic Membrane

Ordering information

Pore sizes	Dimensions Packaging	25 mm 100/pk	47 mm 100/pk
	0.4 μm	3026431	1215071

PCTE Hydrophilic Black Membrane

Ordering information

Pore sizes	Dimensions Packaging	13 mm 100/pk	25 mm 100/pk	47 mm 100/pk	293 mm 20/pk	203x254 mm 30/pk
	0.1 μm	1215311	1215315	1221503		3048982
	0.2 μm	1215185	1215609	1213889	3027176	
	0.4 μm	1215142	1212790	1214567		1227213
	0.6 μm	1222025	1215290	1215198		3054144**
	0.8 μm	1215236	1215138	1222028	3022140	
	1 μm	1221181	1215161	1222035		
	2 μm		1215297		3033301	
	3 μm		1222452	3032159	3033302	
	5 μm	1221286	1215188	1221230		
	8 μm		1229540			

** 100/pack



Disc and Sheet Membranes

PCTE Hydrophilic Membrane - Sheets and Rolls

Ordering information

Dimensions Packaging	19x42 mm 100/pk	25x80 mm 50/pk	203x254 mm 30/pk	300x3000 mm 1/pk
Pore sizes	0.01 µm		1215116	1225184
	0.03 µm		1227264	1239558
	0.05 µm		1215271	3027177
	0.1 µm		1215117	1239556
	0.2 µm		1215118	1239557
	0.4 µm		1215274	
	0.6 µm		1222027	
	0.8 µm		1222030	3035602
	1 µm	1268126	1221429	1267667
	2 µm		1221232	
	3 µm		1215275	3002536
	5 µm	1221295	1222080	1264835
	8 µm	1220867	1222085	3033093
	10 µm		1220823	3033092
	12 µm			1235494
	20 µm		1221231	

PCTE PVP-Free Hydrophobic Membrane

Ordering information

Dimensions Packaging	13 mm 100/pk	25 mm 100/pk	47 mm 100/pk	90 mm 30/pk	203x254 mm 30/pk	203x254 mm 30/pk	25x80 mm 50/pk
Pore sizes	0.01 µm		1226494		3032133		
	0.1 µm	1221504	1215059			1232919	
	0.2 µm		1222017	1222018		1223036	
	0.4 µm		1220835	1215073		1233373	
	0.8 µm		1222032				
	1.0 µm		1222037	1222038		1224067	
	3.0 µm	1215050	1221871	1222077		1228132	1221296
	5.0 µm	1215051	1221746	1222081	1222082	1225120	1221331
	8.0 µm	1215052	1221293	1215148	1222086	1225783	1215042
	10.0 µm	1215053	1222089	1220941		1234298	1215043
	12.0 µm	1215055	1221300				1215044
	14.0 µm	1221297					



Disc and Sheet Membranes

PCTE Hydrophilic Membrane - Disks

Ordering information

Dimensions Packaging	13 mm 100/pk	19 mm 100/pk	25 mm 100/pk	37 mm 100/pk	47 mm 100/pk
Pore sizes	0.01 µm	1215046	1215321		1215068
	0.03 µm	1215047	1227353	1215057	1215069
	0.05 µm	1215048	1221229	1220868	1215070
	0.08 µm	1222092	1220668	1215058	1222093
	0.1 µm	1215605	1215056	1215606	1215608
	0.2 µm	1215610	1220694	1215611	1215612
					1226157*
	0.4 µm	1215613	1215147	1215614	1215615
					1226156*
					1215617
	0.6 µm	1215618	1215619		1215620
	0.8 µm	1215621	1224516	1215622	1215623
					1215624
	1 µm	1215625	1227203	1215627	1221302
					1215628
	2 µm	1215985	1215062		1215629
	3 µm	1215049	1215063		1215036
	5 µm	1215630	1215631		1215632
	8 µm	1215633	3013894	1215634	1215637
	10 µm	1221009	1215638		1212661
	12 µm	1215054	1215984		3027598
	14 µm	1222063	1222064		1215077
	20 µm	1222072	1222073		1215078

* white, sterile and single packed for Legionella test

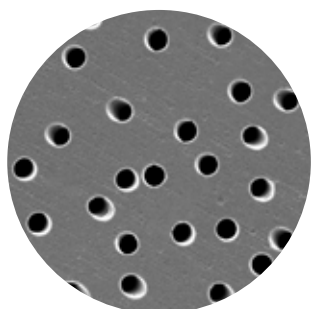
PCTE Hydrophilic Membrane - Disks

Ordering information

Dimensions Packaging	62 mm 100/pk	76 mm 30/pk	76 mm 100/pk	90 mm 30/pk	142 mm 20/pk	293 mm 20/pk
Pore sizes	0.05 µm		1221291	1221227	1221290	1222091
	0.08 µm			1222094	1222095	1222096
	0.1 µm		1220970	1215150	1215304	1215219
	0.2 µm		1220891	1215151	1215215	1215385
	0.4 µm	3023783	1228342	1215303	1215152	1215317
	0.6 µm		1224680	1222026	1221485	1220861
	0.8 µm		1225894	1215194	1215309	1221720
	1 µm		1220860	1215153	1216611	1215145
	2 µm			1222070	1222071	1221005
	3 µm		3013824	1222074	1215113	1222075
	5 µm		3013825	1221004	1215388	
	8 µm		3034848	1215403	1215201	1222084
	10 µm		1267014	1222482	1221292	1222088
	12 µm			1239192		
	14 µm			1222479		



Polyester Track Etched (PETE) Membrane



GVS PETE Membrane is made from a thin polyester film with a high density of solvent resistance. It is ideal for use in blood assays or general filtration where chemically aggressive solvents may be used. The membrane is produced through a two-step proprietary manufacturing process similar to that of the PCTE membrane. In the first step, polyester film is exposed to ion particles that pass through the film. As the ions pass through the film, they create "tracks" where the polymer is damaged. The beamed film is then exposed to a chemical solution which etches out the tracks creating precise, cylindrical pores. Pore density is controlled by the number of tracks per unit area, and pore size is controlled by varying the temperature, strength and time of exposure to the etching solution. This unique process allows for increased control over pore size and density to ensure the physical properties of each membrane precisely fit your specifications. The resulting membrane is a thin, translucent

polyester film with a smooth, flat surface containing pores of controlled diameter and number. The membrane has better solvent resistance than polycarbonate and captures all particles larger than the precisely controlled pore size on its surface.

Characteristics

- Broad range of chemical compatibility for a wide range of applications
- Direct thickness and pore size measurements ensure accurate characteristics
- Naturally hydrophilic so pre-treatments and wetting agents are not required
- Smooth, thin, glass-like surface for microscopic visualization
- Low protein binding ensures clean results

Typical Applications

- General filtration
- Removal of red blood cells from plasma
- Flow control of reagents through assays
- Precise filtration and prefiltration
- Air analysis
- Filtration of aggressive solutions
- Cellular assays and diagnostics
- Trace element analysis

Product Characteristics

Sterilization	Gamma Irradiation or Ethylene Oxide (EtO)
USP Class VI Testing	Passed
Thickness	10 - 20 μm
Extractables	Low
BSA Protein Binding	< 5 $\mu\text{g}/\text{cm}^2$
Maximum Operating Temperature	284°F (140°C)
Sealing Compatibility	Ultrasonic, Heat, Radio Frequency and Insert Molding
Pore Size Range	0.2 to 10 μm

Nominal Product Characteristics

Water Adsorption	0.24%
(% wt. gain 24-hr immersion)	
Residual Ash Weight Average	0.92 $\mu\text{g}/\text{cm}^2$
Specific Gravity	0.94-0.97
Autoclavable	Yes
Leachables	Negligible
Wetting Characteristics	Naturally Hydrophilic
Burst Strength Minimum	0.7 bar (10 psi)
Migration of Filter Media	0
Optical Properties	Semi-translucent

Performance Characteristics

Pore Size (a) (μm)	Pore Density (b) (pores/ cm^2)	Nominal Thickness (c) (μm)	Min. Bubble Point (d) (psi)	Typical Flow Rates	
				Water (e) (mL/min/ cm^2)	Air (L/min/ cm^2)
10	1×10^5	9	0.5	1150	34.5 (g)
8	1×10^5	7	0.7	1000	30 (g)
5	4×10^5	10	1.2	700	30 (g)
3	2×10^6	9	2	440	37.5 (g)
2	2×10^6	10	3	300	16.5 (f)
1	2×10^7	11	6	130	20 (f)
0.8	3×10^7	9	7	90	18 (f)
0.6	3×10^7	9	9	60	7.5 (f)
0.4	1×10^8	10	12	33	7.5 (f)
0.2	3×10^8	10	20	10	3 (f)

- (a) Tolerance + 0%, -20%
- (b) Tolerance + / - 15%
- (c) Tolerance + / - 10%
- (d) Measured using Isopropanol (IPA)
- (e) Initial flow rates using prefiltered water at 10 psid (0.7 kg/ cm^2)
- (f) Initial flow rates using prefiltered air at 10 psid (0.7 kg/ cm^2)
- (g) Initial flow rates using prefiltered air at 5 psi (0.35 kg/ cm^2)

Disc and Sheet Membranes

PETE Membrane - Disks and Sheets

Ordering information

Dimensions Packaging	13 mm 100/pk	25 mm 100/pk	47 mm 100/pk	90 mm 30/pk	142 mm* 20/pk	293 mm 20/pk	203x254 mm 30/pk
Pore sizes	0.2 µm	1220969	1221383	1215288	1222240	1221385	1220886
	0.4 µm	1221387	1221388	1215373	1220702	1221389	1222242
	0.8 µm		1221398	1215374	1221399	1221401	1222246
	1.0 µm	1215379	1215308	1220871	1221402	1222248	1222249
	2.0 µm		1221404	1221405			1222251
	3.0 µm	1221409	1221410	1215367	1222253	1221411	1221412
	5.0 µm	1215324	1221413	1215183	1221414	1221415	1221416
	8.0 µm	1221417	1221418	1221419	1221420		1222258
	10.0 µm		1220827	1215173	1221424	1221426	1222260

*Bulk packaging available

Drain Disc



The polyester spun-bonded "drain" type disc prevents "pore blinding" or blockage of the capillary pores in screen membranes resulting in higher flow rates and increased throughputs. The drain disc increases flow and capture ability by lifting off of screen supports and exposing all the pores. This ensures efficient performance when placed between two filters in a serial filtration stack. The spacers prevent air locking of the downstream screen, or function as filters by binding a percentage of pores in the upstream filter.

The spacer may be sized to fit within the diameter of the O-ring in the filter holder. For example, use a 42 mm spacer under a 47 mm filter.

Characteristics

A Frequently used with PCTE (Polycarbonate) and PETE (Polyester) membranes to increase flow

A Spacer between stacked membranes

Ordering information

Product Code	Quantity	Description
1215218	100/pk	Drain Disc, 13 mm
1215141	100/pk	Drain Disc, 25 mm
1238010	100/pk	Drain Disc, 37 mm
1215500	100/pk	Drain Disc, 42 mm
1215163	100/pk	Drain Disc, 47 mm
1221182	25/pk	Drain Disc, 90 mm
1215522	25/pk	Drain Disc, 124 mm
3033452	25/pk	Drain Disc, 142 mm
3007164	25/pk	Drain Disc, 293 mm



Quantitative filter paper

1. Ashless filter paper for quantitative analysis

These GVS filter papers are used for quantitative analysis and designed for preparation of samples and gravimetric analysis. They are made of refined pulp and linters with virtually 100% of alpha-cellulose content. These filter papers are guaranteed free of possible residual acids used in some production methods.

Extremely low percentage of ash content (maximum ash content of <0.007%).

DSL45 GRADE – Very fast filtration

Filter paper of very high rate of filtration, wide-pored, soft, spongy structure, extremely low-ash content.

Food industry applications: determination of ash contents and PCB determination in foodstuffs.

Beverage industry applications: processing (ashing) fruit juice samples for photometric determinations (e.g. phosphate).

Environmental analysis: Determination of filterable substances and the residue on ignition (dry weight) for the examination of water, wastewater and sludge (DIN 38 409 part 2).

DFA41 GRADE – Fast filtration

Fast ashless filter paper in the GVS quantitative range together with DSL45.

It is particularly suitable for analytical procedures and tests involving large particles or gelatinous precipitates (e.g. metal hydroxides and sulphides).

It is also used in metal (Pb) tests in water testing analysis, quantitative air pollution analysis, food industry, paper industry, etc.

DME43 GRADE – Medium filtration

Ashless filter paper with medium filtration speed and good retention (between Grade DMS40 and Grade DFA41) of medium and thick particles.



Suitable for gravimetric measurements of gypsum/lime suspensions in power plants.

DME43 Grade is particularly applied in metallurgical industry laboratories for metal tests. Typical applications include foodstuffs analysis, soil analysis, particle collection in air pollution monitoring, COD and TOC determination, inorganic analysis in the construction, mining and steel industries. They are also used for Blaine test in the cement industry (standards UNE 80-112-91 and EN 196-6), and to carry out other chemical analysis on cement.

DMS40 GRADE – Medium-slow filtration

The classic general purpose ashless filter paper with a medium-to-slow filtering rate.

Suitable for typical applications which includes gravimetric analysis for numerous components and for all kind of pre-filtrations.

Used as a primary filter for separating solid matter from aqueous extracts, in tests for fat and oil in water, in general soil analysis, quantitative determination of sediments in milk, as well as in analytical grade clean-up filter for solutions prior to AA spectro-photometry. Suitable for finer precipitates such as hot barium sulphate.

DSL44 GRADE – Slow filtration

A thinner version of DXS42 Grade but with a higher flow rate (twice as fast as DXS42 Grade).

Very fine particles but with lower ash weight per sample

DXS42 GRADE – Very slow filtration

An ashless world standard filter for critical gravimetric analysis. With slow filtering rate and fine particle retention.

Typical analytical precipitates such as cold barium sulphate, lead sulphate, zinc and nickel sulphides, etc.

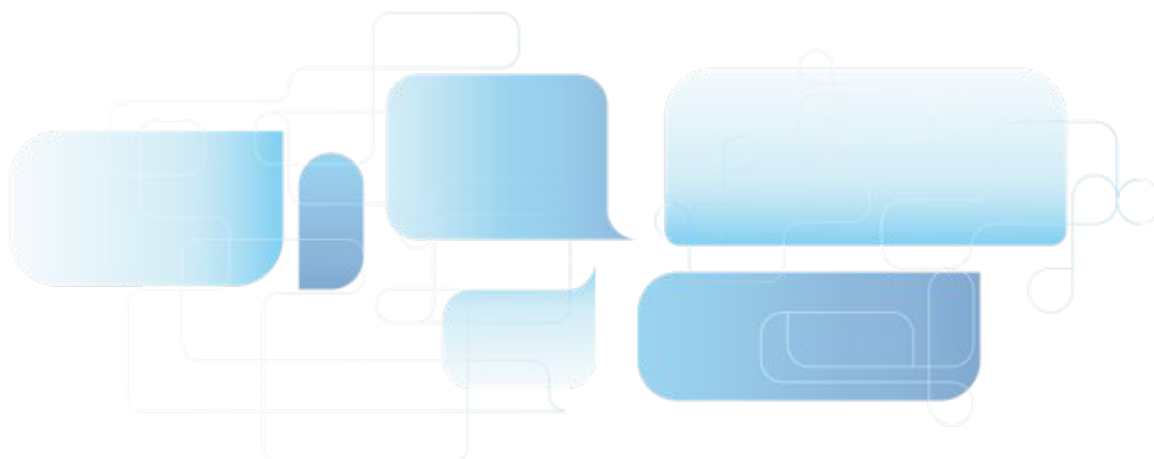


Disc and Sheet Membranes

Grade	Applications
DSL45	Filtration of coarse and voluminous precipitates such as iron hydroxide, aluminium hydroxide and chromium hydroxide Silica content determinations in steel and iron Food and beverage analysis
DFA41	Food analysis Soil analysis Determination of metals in water Filtration of lead sulphide, iron sulphide, silver sulphide and alkali carbonates Blaine test in the cement industry (standards UNE 80-112-91 and EN 196-6)
DME43	Filtration of medium size particles Precipitates such as calcium oxalate, magnesium ammonium phosphate, and barium sulphate Blaine test in the cement industry (standards UNE 80-112-91 and EN 196-6)
DMS40	Fine precipitates CaC_2O_4 , PbSO_4 , BaSO_4 (precipitates)
DSL44	Filtration of fine precipitates such as barium sulphate and cuprous oxide Soil analysis: measurement of soluble sulphates
DXS42	Critical analytical filtration conditions Fine precipitates Precipitates such as cold barium sulphate, lead sulphate, zinc and nickel sulphides, etc

Technical Specifications

	Grade	Filtration Speed	Weight (g/m ²)	Thickness (μm)	Retention Range (μm)	Ash Content (%)
●	DSL45	Very Fast	85	210	25-30	<0.007
○	DFA41	Fast	85	190	20-25	<0.007
●	DME43	Medium	85	180	14-17	<0.007
●	DMS40	Medium-Slow	85	170	7-9	<0.007
●	DSL44	Slow	85	160	2-4	<0.007
●	DXS42	Very Slow	100	160	2-3	<0.007



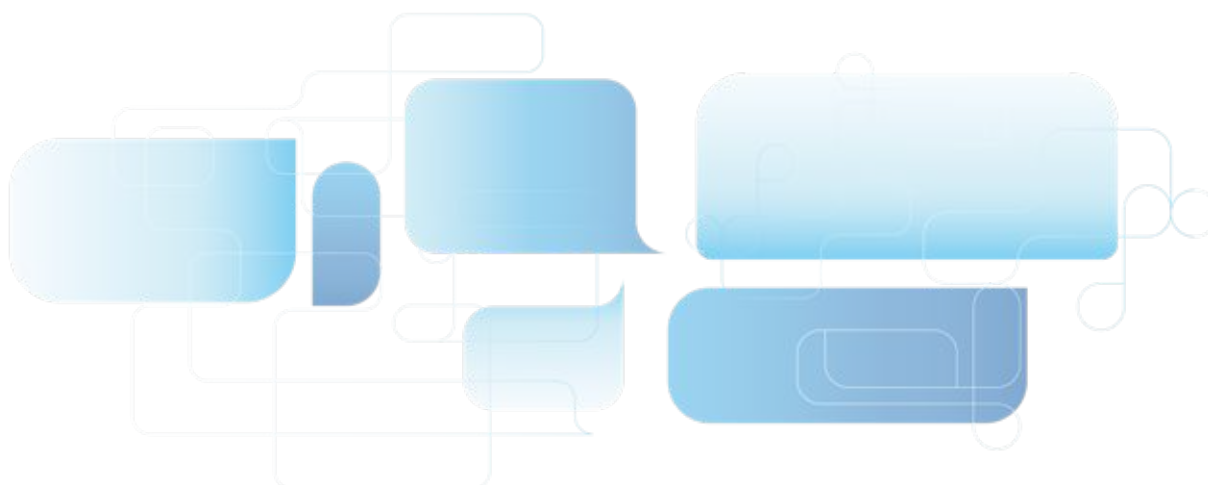
Disc and Sheet Membranes

Ordering information

Diameter (mm)	DSL45	DFA41	DME43	DMS40	DSL44	DXS42
100 Circles/Box						
37	FP037DSL45QANC01	-	-	-	-	-
42.5	FP042DSL45QANC01	FP042DFA41QANC01	FP042DME43QANC01	FP042DMS40QANC01	FP042DSL44QANC01	FP042DXS42QANC01
47	FP047DSL45QANC01	FP047DFA41QANC01	FP047DME43QANC01	FP047DMS40QANC01	FP047DSL44QANC01	FP047DXS42QANC01
55	FP055DSL45QANC01	FP055DFA41QANC01	FP055DME43QANC01	FP055DMS40QANC01	FP055DSL44QANC01	FP055DXS42QANC01
70	FP070DSL45QANC01	FP070DFA41QANC01	FP070DME43QANC01	FP070DMS40QANC01	FP070DSL44QANC01	FP070DXS42QANC01
90	FP090DSL45QANC01	FP090DFA41QANC01	FP090DME43QANC01	FP090DMS40QANC01	FP090DSL44QANC01	FP090DXS42QANC01
110	FP110DSL45QANC01	FP110DFA41QANC01	FP110DME43QANC01	FP110DMS40QANC01	FP110DSL44QANC01	FP110DXS42QANC01
125	FP125DSL45QANC01	FP125DFA41QANC01	FP125DME43QANC01	FP125DMS40QANC01	FP125DSL44QANC01	FP125DXS42QANC01
150	FP150DSL45QANC01	FP150DFA41QANC01	FP150DME43QANC01	FP150DMS40QANC01	FP150DSL44QANC01	FP150DXS42QANC01
185	FP185DSL45QANC01	FP185DFA41QANC01	FP185DME43QANC01	FP185DMS40QANC01	FP185DSL44QANC01	FP185DXS42QANC01
240	FP240DSL45QANC01	FP240DFA41QANC01	FP240DME43QANC01	FP240DMS40QANC01	FP240DSL44QANC01	FP240DXS42QANC01
320	FP320DSL45QANC01	FP320DFA41QANC01	FP320DME43QANC01	FP320DMS40QANC01	FP320DSL44QANC01	FP320DXS42QANC01

Equivalence Table

GVS	Filtration Speed	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
DSL45	Very fast	-	589/1	640we	388
DFA41	Fast	41	589/2	640w	389
DME43	Medium	43	589/5	640m	392
DMS40	Medium-slow	40	589/6	640md	390
DSL44	Slow	44	589/3	640d	391
DXS42	Very slow	42	-	640de	393



Quantitative filter paper

2. Ashless hardened filter paper for quantitative analysis

Ashless hardened Filter papers are acid hardened which reduce the ash content to an extremely low level.

These filters are produced by a complex elaborate washing process under stringently controlled conditions. Firstly, acid washing is arranged. Then a series of washes in demineralised water come, which increase the strength of the paper, therefore making them particularly suitable for Büchner filter funnels and a wide range of critical analytical filtration operations.

Through this process, a maximum ash content of <0.006% is attained, which means that no contaminants are introduced when filtering. Also, full compliance with international standards on this subject is achieved.

Thanks to the hardened texture, they are often used when the analyst must recover the precipitates retained on the filter surface.

DF541 GRADE - Fast filtration

Hardened ashless filter paper with a fast flow rate. Preferably used for the filtration of coarse flocculent and bulky precipitates (as aluminium, chromium or hydroxides of iron, bismuth, cobalt, sulphides of copper, various organic metal precipitates, etc.) and gelatinous precipitates in acid/alkaline solutions during gravimetric analysis.

DF540 GRADE - Medium filtration

Hardened ashless filter paper with medium retention and flow rate.

Extremely strong and pure. With a hard surface, it is recommended for filtering medium-sized precipitates such as most metal sulphides.

High chemical resistance. Used in the gravimetric analysis of metals in acid and slightly alkalized solutions, pressure filtration.

DF542 GRADE - Slow filtration

Hardened ashless filter paper with high retention and slow flow rate.

High chemical resistance. Often used for filtering very fine precipitates and in gravimetric metal determinations.

Grade	Applications
DF541	Food analysis Fibre detection in pet food Filtration of coarse flocculent and bulky precipitates (as aluminium, chromium or hydroxides of iron, bismuth, cobalt, sulphides of copper, various organic metal precipitates, etc.) Gravimetric analysis of gelatinous precipitates in acid/alkaline solutions
DF540	Filtration of fine crystalline precipitates Gravimetric analysis of metals in acid/alkaline solutions
DF542	Filtration of very fine precipitates Gravimetric metal determinations

Technical Specifications

GVS	Filtration Speed	Weight (g/m ²)	Thickness (µm)	Retention Range (µm)	Ash Content (%)
DF541	Fast	84	170	20-25	<0.006
DF540	Medium	84	160	7-12	<0.006
DF542	Slow	95	150	2-4	<0.006



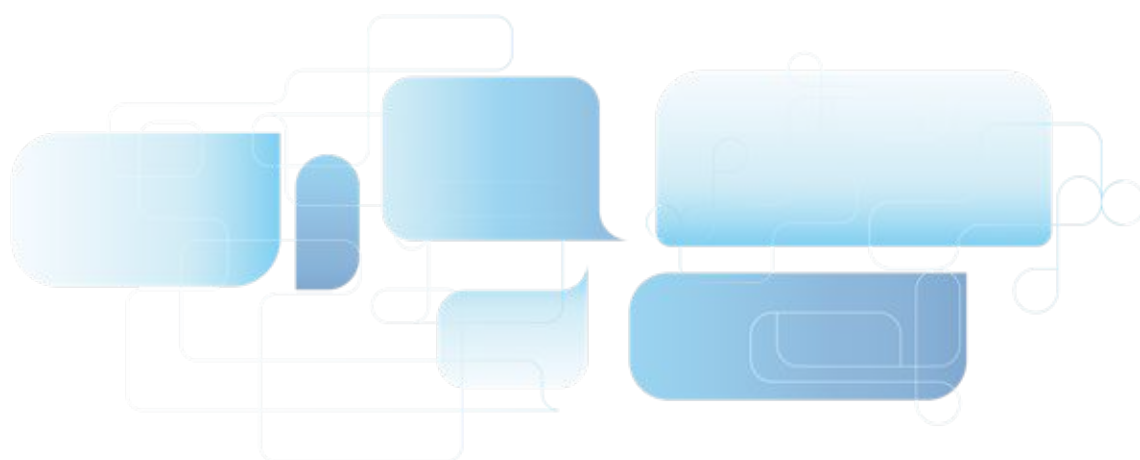
Disc and Sheet Membranes

Ordering information

Diameter (mm)	DF541	DF540	DF542
1000 Circles/Box			
25	FP025DF541QANC01	FP025DF540QANC01	FP025DF542QANC01
100 Circles/Box			
40.5	FP040DF541QANC01	FP040DF540QANC01	FP040DF542QANC01
42.5	FP042DF541QANC01	FP042DF540QANC01	FP042DF542QANC01
47	FP047DF541QANC01	FP047DF540QANC01	FP047DF542QANC01
55	FP055DF541QANC01	FP055DF540QANC01	FP055DF542QANC01
70	FP070DF541QANC01	FP070DF540QANC01	FP070DF542QANC01
90	FP090DF541QANC01	FP090DF540QANC01	FP090DF542QANC01
110	FP110DF541QANC01	FP110DF540QANC01	FP110DF542QANC01
125	FP125DF541QANC01	FP125DF540QANC01	FP125DF542QANC01
150	FP150DF541QANC01	FP150DF540QANC01	FP150DF542QANC01
185	FP185DF541QANC01	FP185DF540QANC01	FP185DF542QANC01
240	FP240DF541QANC01	FP240DF540QANC01	FP240DF542QANC01
320	FP320DF541QANC01	FP320DF540QANC01	FP320DF542QANC01

Equivalence Table

GVS	Filtration Speed	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
DF541	Fast	541	1505	1640w	1388
DF540	Medium	540	1506	1640m	1392
DF542	Slow	542	1507	1640de	1391



Qualitative filter paper

1. Ashless hardened filter paper for qualitative analysis



These filter papers are used for qualitative analysis. Qualitative filters are made of refined pulp and pure cotton linters with an alpha-cellulose content of nearly 100%, which gives them a number of diverse filtration properties.

The ash content of less than 0.06% is not reduced by post-treatment. Qualitative filter papers are available in sheets, discs and folded filters.

DXF04 GRADE - Very fast filtration

Very high rate of filtration with excellent retention of coarse precipitates such as metal hydroxides and sulphides or gelatinous substances.

Preferably used as rapid filter for various organic metal precipitates, routine cleanup of biological fluids, food industry analysis, air pollution monitoring (high rates and the fine particles collection is not critical).

DME07 GRADE - Fast filtration

A standard grade filter used for a wide variety of analytical routine applications in different industries. These cellulose filters are used in qualitative analytical techniques to determine and identify materials. Pre-pleated qualitative filters are also available, which give improved flow rate and increased loading capacity compared to equivalent flat filters.

DME01 GRADE - Medium filtration

The most widely used filter paper in the GVS range.

Medium retention and flow rate. This grade covers a wide range of laboratory applications and is frequently used for clarifying liquids. Traditionally this grade is used in qualitative analytical separations for routine laboratory work as well as rapid filtration of fine precipitates such as lead sulphate, calcium oxalate (hot) and calcium carbonate.

In agriculture, it is used for soil analysis and seed testing procedures.

In the food industry, Grade DME01 is used for numerous routine techniques to separate solid foodstuffs from associated liquid or extracting liquid.

It is widely used in education for teaching simple qualitative analytical separations.

In air pollution monitoring, using circles or rolls, atmospheric dust is collected from airflow and the stain-intensity measured photometrically.

For gas detection, the paper is impregnated with a chromogenic reagent and color formation quantified by optical reflectance.

DMS02 GRADE - Medium-slow filtration

Slightly more retentive and absorbent than Grade DME01 and therefore with a moderate to slow filtration speed.

In addition to general filtration this grade DMS02 is used for monitoring specific contaminants in the atmosphere, filtration of fine precipitates, soil testing, it is often used as a folded filter in an analytical funnel.

DMS03 GRADE - Medium-slow filtration (thick)

Medium to low rate of filtration with double the thickness comparing with GVS Grade DME01.

Fine particle retention and excellent loading capacity.

The extra thickness gives increased wet strength and allows a higher solute loading.

Preferably used for liquids hard to clarify, essences, oils, tinctures.

DNS06 GRADE - Slow filtration

Similar particle retention as Grade DXS05 with higher filtration speed.

Often used for boiler water analysis.

DXS05 GRADE - Very slow filtration

Lowest rate of filtration in the GVS qualitative range and maximum degree of fine particle filtration or retention.

Preferably used as a clarifying filter for cloudy suspensions and water and soil analysis. Particularly used in difficult filtration conditions and extra fine-grained precipitates such as barium sulphate, cupreous oxide, often specified for clarification of wine.



Disc and Sheet Membranes

Grade	Applications
DXF04	Coarse and gelatinous precipitates such as iron hydroxide, aluminium hydroxide and chromium hydroxide Silica determination in steel and iron analysis Food analysis Monitoring of air pollution when the collection of fine particles is not critical Routine clean-up of biological fluids or organic extracts
DME07	Filtration of a wide range of routine laboratory applications Food analysis. Determination of fat content Beverage analysis. Removal of carbon dioxide and turbidity from beer and other beverages
DME01	Filtration of a wide range of routine laboratory applications for medium retention Filtration of fine precipitates such as lead sulphate, calcium oxalate, calcium carbonate and other metal sulphates Soil analysis and seed testing Food analysis Education Used in the beer and malt control quality production according to EBC.
DMS02	Monitoring specific contaminants in the atmosphere Filtration of fine precipitates such as lead dioxide, calcium fluoride, nickel sulphide and zinc sulphide Soil analysis
DMS03	Particularly useful for use in Büchner funnels Preferably used for liquids hard to clarify, essences, oils and tinctures
DNS06	Filtration of very fine crystalline precipitates Beverage analysis. Sample preparation and removal of carbon dioxide for beverages Monitoring specific contaminants in the atmosphere Soil analysis
DXS05	Filtration in very difficult conditions Filtration for extra fine-grained precipitates such as barium sulphate, cupreous oxide often specified used for clarification of wine

Technical Specifications

GVS	Filtration Speed	Weight (g/m ²)	Thickness (µm)	Retention Range (µm)	Ash Content (%)
DXF04	Very fast	84	190-230	12-15	<0.06
DME07	Fast	84	190-230	8-12	<0.06
DME01	Medium	84	160-190	7-11	<0.06
DMS02	Medium-Slow	97	190	5-8	<0.06
DMS03	Medium-Slow/Thick	200	320	5-7	<0.06
DXS05	Very Slow	80	170	1-2	<0.06



Disc and Sheet Membranes

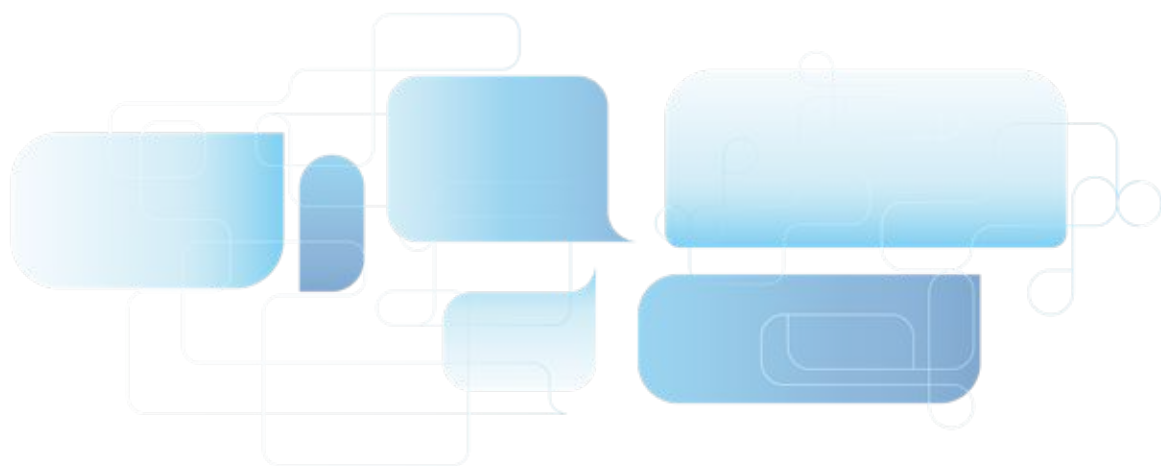
Ordering information

Diameter (mm)	DXF04	DME07	DME01	DMS02	DMS03	DNS06	DXS05
100 Circles/Box							
37	FP037DXF04QALC00	FP037DME07QALC01	FP037DME01QALC01	-	FP037DMS03QLTC01	-	-
42.5	FP042DXF04QALC01	FP042DME07QALC01	FP042DME01QALC01	FP042DMS02QALC01	FP042DMS03QLTC01	-	FP042DXS05QALC01
47	FP047DXF04QALC01	FP047DME07QALC01	FP047DME01QALC01	FP047DMS02QALC01	FP047DMS03QLTC01	-	FP047DXS05QALC01
55	FP055DXF04QALC01	FP055DME07QALC01	FP055DME01QALC01	FP055DMS02QALC01	FP055DMS03QLTC01	-	FP055DXS05QALC01
70	FP070DXF04QALC01	FP070DME07QALC01	FP070DME01QALC01	FP070DMS02QALC01	FP070DMS03QLTC01	-	FP070DXS05QALC01
90	FP090DXF04QALC01	FP090DME07QALC01	FP090DME01QALC01	FP090DMS02QALC01	FP090DMS03QLTC01	-	FP090DXS05QALC01
110	FP110DXF04QALC01	FP110DME07QALC01	FP110DME01QALC01	FP110DMS02QALC01	FP110DMS03QLTC01	-	FP110DXS05QALC01
125	FP125DXF04QALC01	FP125DME07QALC01	FP125DME01QALC01	FP125DMS02QALC01	FP125DMS03QLTC01	-	FP125DXS05QALC01
150	FP150DXF04QALC01	FP150DME07QALC01	FP150DME01QALC01	FP150DMS02QALC01	FP150DMS03QLTC01	-	FP150DXS05QALC01
185	FP185DXF04QALC01	FP185DME07QALC01	FP185DME01QALC01	FP185DMS02QALC01	FP185DMS03QLTC01	FP185DNS06QALC0F	FP185DXS05QALC01
240	FP240DXF04QALC01	FP240DME07QALC01	FP240DME01QALC01	FP240DMS02QALC01	FP240DMS03QLTC01	-	FP240DXS05QALC01
320	FP320DXF04QALC01	FP320DME07QALC01	FP320DME01QALC01	FP320DMS02QALC01	FP320DMS03QLTC01	-	FP320DXS05QALC01

Note: for folded format or other sizes packaging, please contact local representatives.

Equivalence Table

GVS	Filtration Speed	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
DXF04	Very fast	4	604	1670/617	288
DME07	Fast	-	597	-	289
DME01	Medium	1	593/595	616/615	292
DMS02	Medium-slow	2	-	616md	292a
DMS03	Medium/thick	3	591	618	3 S/h
DXS05	Very slow	5	602eh	619de	293



Qualitative filter paper

2. General-purpose qualitative filter paper

These general-purpose filters have a high wet strengthened. They are made of high-purity cotton linters and other virgin fibers. These filter papers have either fast or very fast filtration rates, and are particularly useful in filtering coarse precipitates or relatively straightforward substances.

DME93 GRADE - Very fast filtration

Smooth Grade DME93 is a general-purpose filter paper for qualitative analysis.

This wet strengthened paper is used for general filtration and sample preparation for food, sugar processing plants, hospitals, educational and research centres, colleges, universities and labs (with a very high usage and less critical analysis), etc.

DXF55 GRADE - Very fast filtration

General-purpose filter paper, smooth and similar to DME93 with less weight.

DXF13 GRADE - Extra-fast filtration. Thick

High particle retention and extremely high loading capacity.

Preferably used for filtration of gelatine, resin solutions and other viscous liquids, such as syrups, oils, essences and fats.

The folded format enables bigger volumes to be dealt at atmospheric pressures.

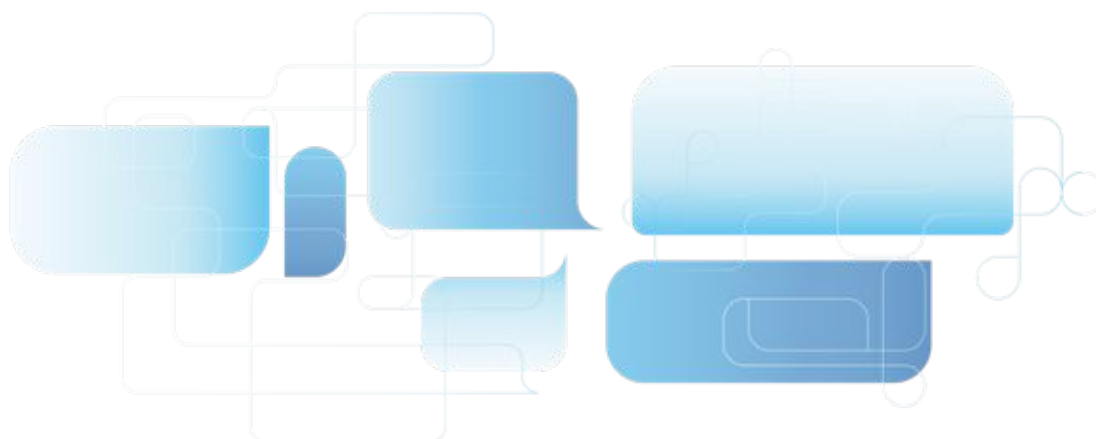
DME91 GRADE - Very fast filtration. Crêped

Crêped surface filter paper with a very fast flow rate.

For general laboratory use in less-critical analyses.

Used around the world in laboratories to assay sugar cane or beet. The fruit is mashed and further analyzed according to the aluminium sulphur method.

Grade	Applications
DME93	General filtration and sample preparation in different kind of laboratories General filtration and sample preparation in food and sugar processing plants
DXF55	General-purpose filtration
DXF13	Filtration of gelatines, resin solutions and other viscous liquids such as syrups, dense oils, essences and fats
DME91	Determination of sucrose in the sugar cane or beet



Disc and Sheet Membranes

Technical Specifications

GVS	Filtration Speed	Weight (g/m ²)	Thickness (μm)	Retention Range (μm)	Ash Content (%)
DME93	Very Fast	80	170	43-48	<0.1
DXF55	Very Fast	65	145	6-9	<0.1
DXF13	Extra-Fast/Thick	160	470	60-68	<0.1
DME91	Very Fast/Crêped	65	160	34-42	<0.1

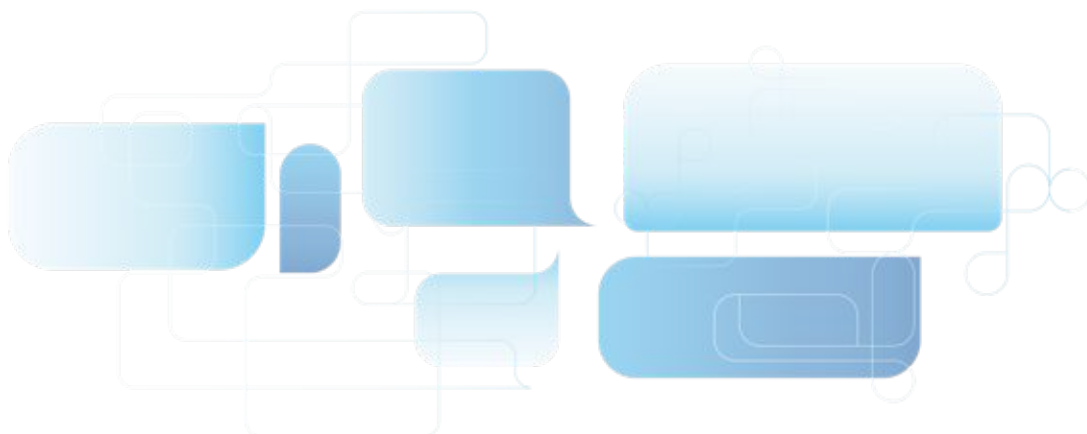
Ordering information

Diameter(mm)	DME93	DXF55	DXF13	DME91
100 Circles/Box				
42.5	FP042DME93QALC01	-	-	FP042DME91QALC01
47	FP047DME93QALC01	-	-	FP047DME91QALC01
55	FP055DME93QALC01	-	-	FP055DME91QALC01
70	FP070DME93QALC01	-	-	FP070DME91QALC01
90	FP090DME93QALC01	-	-	FP090DME91QALC01
110	FP110DME93QALC01	FP110DXF55CREC01	-	FP110DME91QALC01
125	FP125DME93QALC01	FP125DXF55CREC01	-	FP125DME91QALC01
130	-	FP130DXF55CREC01	-	-
150	FP150DME93QALC01	FP150DXF55CREC01	-	FP150DME91QALC01
185	FP185DME93QALC01	FP185DXF55CREC01	-	FP185DME91QALC01
200	-	FP200DXF55CREC01	-	-
240	FP240DME93QALC01	FP240DXF55CREC01	FP240DXF13QALC0F	FP240DME91QALC01
250	-	FP250DXF55CREC01	-	-
270	-	FP270DXF55CREC01	-	-
300	-	FP300DXF55CREC01	-	-
320	FP320DME93QALC01	FP320DXF55CREC01	-	FP320DME91QALC01

Note: for folded format or other sizes packaging, please contact local representatives.

Equivalence Table

GVS	Filtration Speed	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
DME93	Very fast	93	860	617	4b
DXF55	Very fast	-	-	-	3m/N
DXF13	Extra-fast/Thick	-	3144L	-	-
DME91	Very fast/Crêped	91	0856	-	601/N



Special Filter Papers

1. Filter paper with diatomaceous

Filter paper with low filtration speed. Made with a mixture of cellulose fibers and diatomaceous soils (diatomaceous algae), the main property is its microporous structure, up to 0.5 μm .

The land production process begins with open pit mining. Subsequently, a drying phase follows and it is subjected to high temperatures to eliminate any remaining residue. Finally, it is crushed for industrial use.

This filter paper combines excellent retention of very fine or semi-colloidal particles with a faster filtration speed than any slow filtration cellulose filter paper.

Applications

Filtration of samples for spectrophotometric analysis

Clay samples

Separation of samples with Cu oxides

Protein samples

Technical Specifications

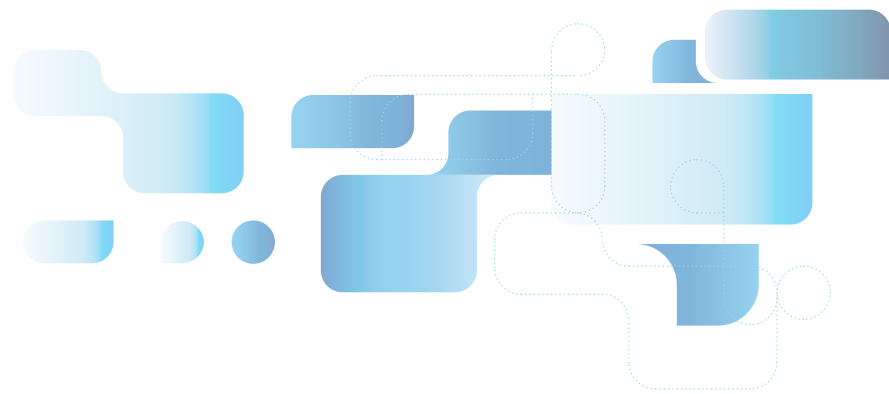
GVS	Filtration Speed	Weight (g/m ²)	Thickness (μm)
DMS60	Slow	140	320

Ordering information

Diameter(mm)	Product Code	Quantity/Box
150	FP150DMS60KSLG0F	100
185	FP185DMS60KSLG0F	100
240	FP240DMS60KSLG0F	100

Equivalence Table

GVS	Filtration Speed	Equivalent 1	Equivalent 2
DMS60	Slow	287	MN660



Glass microfiber filters

GVS offers a wide range of glass microfiber filters made of 100% borosilicate glass fibers with and without binders. The depth structure of the filter's large surface area, provides an outstanding impurity retention capacity combined with a low filter resistance. Glass fiber filters adsorb the finest particles down to 1 μm from liquids and $<1 \mu\text{m}$ in air and gases (even aerosols with this particle diameter are separated), as the electrostatic interaction between the glass fibers and gases is better than between glass fibers and liquids. Temperature resistant up to 500°C (in the case of organic binders up to 180°C).

1. Glass microfiber filters without binders

DFAFA GRADE (1.6 μm)

Particularly suited for atmospheric pollution controls, intake controls and ozone level measurements.

This product is used in testing with algae in water, for general water controls and waste water analysis.

Its use for filtering solvents in high-resolution laboratories is recommended.

DAM10 GRADE (1.0 μm)

It is mainly used in membrane pre-filtration and for biochemical assays.

Suitable for filtration of large sample volumes.

DMEFC GRADE (1.2 μm)

This is the most suitable filter to test for solids in suspension in water in accordance with the parameters set by the EN-872:2005 European regulation and American Standard Methods norm 2540D. In general, it is suitable for any work in water control or wastewater analysis, including clarification processes.

Within biochemical tests, it is very useful for analysing carbohydrates, cellular cultures, etc.

DAM27 GRADE (2.7 μm)

The most widespread use of this filter is in membrane pre-filtering.

Its high particle retention ensures that the sample is properly clarified before passing through surface filters (membrane filters).

DSLFF GRADE (0.7 μm)

This is the filter with the highest retention performance of the range. It is particularly suited to filter samples and solvents for HPLC, being this pre-filtration the most important for ensuring the success of the test. It is also suitable for biochemical tests, such as clarifications, protein filtrations, cellular cultures, etc.

DFAAH GRADE (1.5 μm)

Suitable for atmospheric pollution control, particularly in testing for air intake levels. It is also appropriate for wastewater controls, testing for solids in suspension, dissolved solids and volatile matter in accordance with the parameters set by the American Standard Methods norm 2540D.

It is also suitable for cellular cultures.

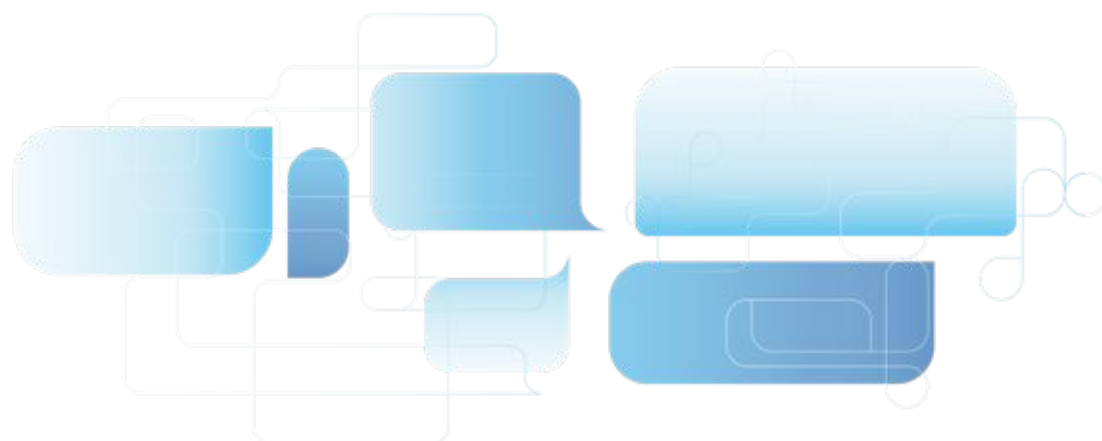


Disc and Sheet Membranes

Grade	Applications
DFAFA	Atmospheric pollution controls, intake controls and ozone level measurements Filtration for algae in water, foodstuff analysis, bacteria cultures, proteins
DAM10	Used in membrane pre-filtration Biochemical assays Suitable for filtration of large volumes
DMEFC	Determination of suspended solids in water in accordance with European regulations Clarification and monitoring water and wastewater analysis Analysis of carbohydrates, cellular cultures in biochemical tests where cellulose fiber is an inconvenience
DAM27	Used as a membrane pre-filter Determination of contaminants in fats according to LMBG
DSLFF	Highest retention performance of the range Filtration of samples and solvents prior to HPLC Biochemical assays and clarifications of protein solutions
DFAAH	Filtration of suspended solids in water, wastewater analysis Total suspended solids analysis Atmospheric pollution control It is also suitable for cellular cultures

Technical Specifications

GVS	Retention Range (µm)	Weight (g/m ²)	Thickness (µm)	Retention Drop(*) (%)	Binder
DFAFA	1.6	52	260	99.998	NO
DAM10	1.0	143	700	99.998	NO
DMEFC	1.2	53	260	99.998	NO
DAM27	2.7	120	530	99.998	NO
DSLFF	0.7	75	450	99.998	NO
DFAAH	1.5	65	280	99.998	NO



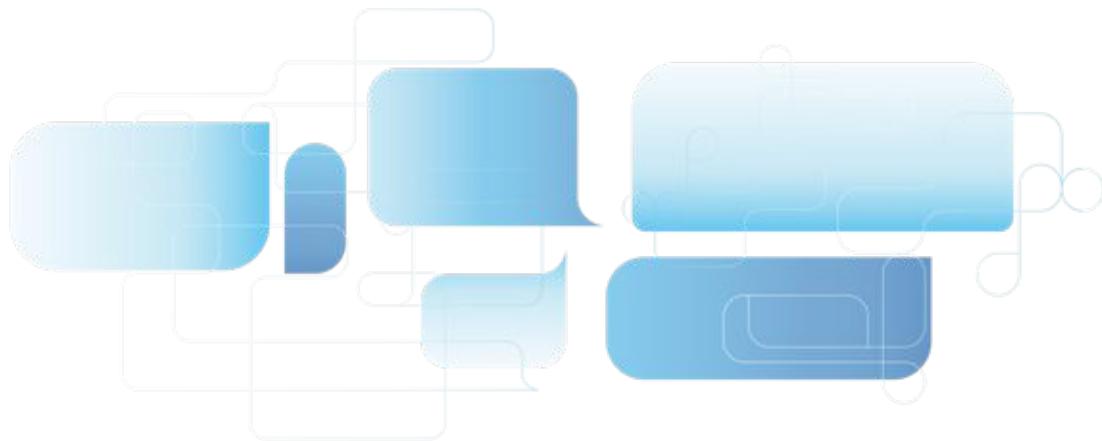
Disc and Sheet Membranes

Ordering information

Diameter (mm)	DFAFA	DAM10	DMEFC	DAM27	DSLFF	DFAAH
100 Circles/Box						
21	FP021DFAFAGLFC01	FP021DAM10GLFC01	FP021DMEFCGLFC01	FP021DAM27GLFC01	FP021DSLFFGLFC01	FP021DFAAHGLFC01
25	FP025DFAFAGLFC01	FP025DAM10GLFC01	FP025DMEFCGLFC01	FP025DAM27GLFC01	FP025DSLFFGLFC01	FP025DFAAHGLFC01
37	FP037DFAFAGLFC01	FP037DAM10GLFC01	FP037DMEFCGLFC01	FP037DAM27GLFC01	FP037DSLFFGLFC01	FP037DFAAHGLFC01
47	FP047DFAFAGLFC01	FP047DAM10GLFC01	FP047DMEFCGLFC01	FP047DAM27GLFC01	FP047DSLFFGLFC01	FP047DFAAHGLFC01
50	FP050DFAFAGLFC01	FP050DAM10GLFC01	FP050DMEFCGLFC01	FP050DAM27GLFC01	FP050DSLFFGLFC01	FP050DFAAHGLFC01
55	FP055DFAFAGLFC01	FP055DAM10GLFC01	FP055DMEFCGLFC01	FP055DAM27GLFC01	FP055DSLFFGLFC01	FP055DFAAHGLFC01
70	FP070DFAFAGLFC01	FP070DAM10GLFC01	FP070DMEFCGLFC01	FP070DAM27GLFC01	FP070DSLFFGLFC01	FP070DFAAHGLFC01
90	FP090DFAFAGLFC01	FP090DAM10GLFC01	FP090DMEFCGLFC01	FP090DAM27GLFC01	FP090DSLFFGLFC01	FP090DFAAHGLFC01
110	FP110DFAFAGLFC01	FP110DAM10GLFC01	FP110DMEFCGLFC01	FP110DAM27GLFC01	FP110DSLFFGLFC01	FP110DFAAHGLFC01
125	FP125DFAFAGLFC01	FP125DAM10GLFC01	FP125DMEFCGLFC01	FP125DAM27GLFC01	FP125DSLFFGLFC01	FP125DFAAHGLFC01
150	FP150DFAFAGLFC01	FP150DAM10GLFC01	FP150DMEFCGLFC01	FP150DAM27GLFC01	FP150DSLFFGLFC01	FP150DFAAHGLFC01
240	FP240DFAFAGLFC01	FP240DAM10GLFC01	FP240DMEFCGLFC01	FP240DAM27GLFC01	FP240DSLFFGLFC01	FP240DFAAHGLFC01
Size (mm)	DFAFA	DAM10	DMEFC	DAM27	DSLFF	DFAAH
100 Sheets/Pack						
203x254	FP203RFAFAGLFC01	FP203RAM10GLFC01	FP203RMEFCGLFC01	FP203RAM27GLFC01	FP203RSLFFGLFC01	FP203RFAAHGLFC01

Equivalence Table

GVS	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
DFAFA	GF-A	GF 50	GF1	MGA
DAM10	GF-B	GF 51	GF2	MGB
DMEFC	GF-C	GF 52	GF3	MCG
DAM27	GF-D	GF 53	GF4	MGD
DSLFF	GF-F	GF 55	GF5	MGF
DFAAH	934-AH	GF 30	GF6	550-HA



Disc and Sheet Membranes

2. Glass microfiber filters with binders

These glass microfiber filters are mostly used for monitoring air and gas or as prefilter. They have extreme mechanical and chemical stability because they are manufactured with synthetic binders to ensure that the filter has a defined strength. They have a temperature resistance of up to 180°C.

Technical Specifications

GVS	Retention Range (µm)	Weight (g/m ²)	Thickness (µm)	Binder
DAM64	1.0	85	450	YES

Grade	Applications
DAM64	Pre-filtration and clarification for Biopharmaceutical and Food & Beverage industry Filtration in ink industry Brine filtration

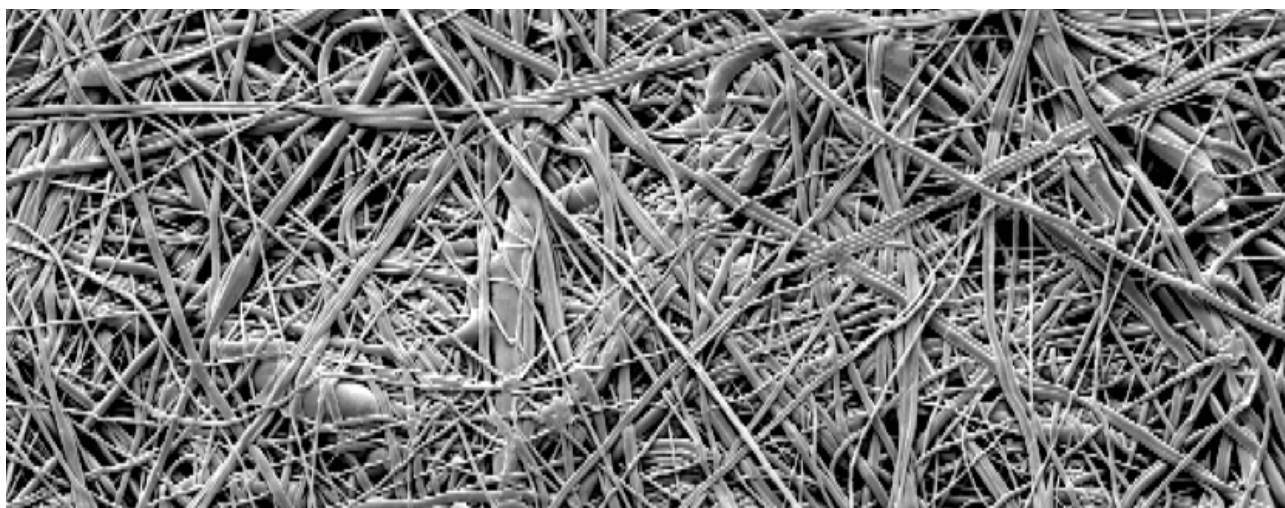
Ordering information

Diameter (mm)	DAM64
100 Circles/Box	
25	FP025DAM64GLFC01
37	FP037DAM64GLFC01
47	FP047DAM64GLFC01
50	FP050DAM64GLFC01
90	FP090DAM64GLFC01
150	FP150DAM64GLFC01

Note: for paper filter roll, please contact local representatives.

Equivalence Table

GVS	Equivalent 1	Equivalent 2
DAM64	GF6	GF6



Quartz microfiber filters

The GVS quartz microfiber filters are made with pure quartz microfibers and are free of binders or additives of any kind. These filters have retention, loading and air permeability features similar to those of the glass microfiber filters. However, since they have greater chemical resistance at high temperatures, they can be used in environments where extreme conditions are present, replacing the glass microfiber filters in such cases.

D0QF1 Standard grade

D0QF2 Very pure filter/very low trace levels of heavy metals

Features

High-purity quartz microfiber filters (SiO₂) free of binding elements or additives

Excellent retention levels for very fine particles

Very high air permeability

High temperature stability. It is very good up to 900°C, some loss of their usual properties setting in beyond that point

Excellent chemical stability with practically no filter-mass losses through chemical reactions under extreme conditions with the presence of acid gases (HCl, SO₂, SO₃, H₂, SO₄, NO and NO₃)

Applications

Determination of suspended particles on the atmosphere

Emissions monitoring in industrial chimneys

Gravimetric determination in gases

Monitoring the level of heavy metals in atmospheric pollution studies

Incinerators

When the temperature of emissions is higher than the temperature that the glass microfiber can beat, it is used quartz microfiber

Analysis of acid gases

Microplastic sample preparation and separation before chromatographic analysis

Technical Specifications

Grade	Weight (g/m ²)	Thickness (μm)	Retention Dop (*) (%)	Maximum Temperature (°C)	Binder
D0QF1	85.0	440	99,998	900	NO
D0QF2	85.0	430	99,998	900	NO

(*) Retention of a Dyoptil Ophtalate fog with 0.3 μm particles



Disc and Sheet Membranes

Ordering Information

Diameter (mm)	D0QF1	D0QF2
25 Circles/Box		
25	FP025D0QF1QUFC01	-
37	FP037D0QF1QUFC01	-
47	FP047D0QF1QUFC01	FP047D0QF2QUFC01
50	FP050D0QF1QUFC01	FP050D0QF2QUFC01
55	FP055D0QF1QUFC01	FP055D0QF2QUFC01
70	FP070D0QF1QUFC01	-
90	FP090D0QF1QUFC01	FP090D0QF2QUFC01
110	FP110D0QF1QUFC01	-
125	FP125D0QF1QUFC01	-
150	FP150D0QF1QUFC01	FP150D0QF2QUFC01
100 Sheets/Pack		
203X254	FP203R0QF1QUFC01	-

Equivalence Table

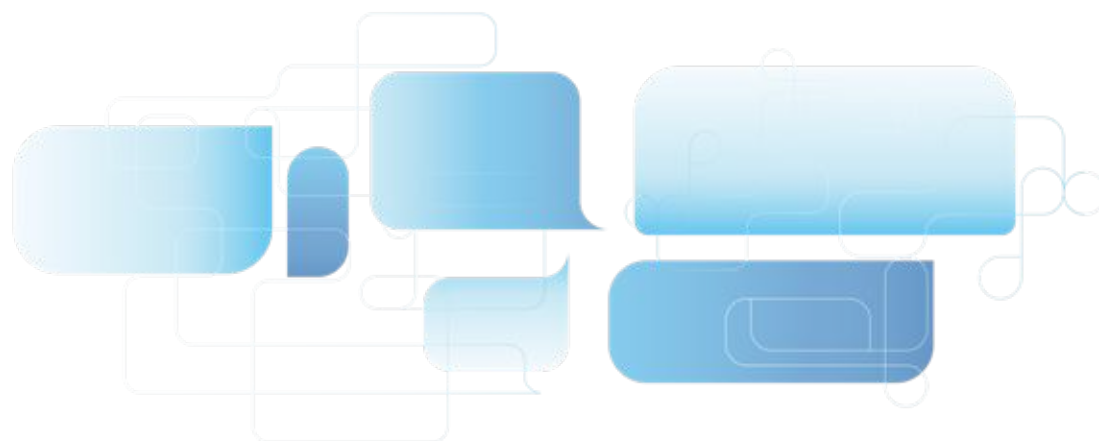
GVS	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
D0QF1	QM-A	QF20	QF10	T293
D0QF2	-	-	-	MK360

Trace elements in ppm

Element	D0QF1	D0QF2
Al	50	25
As	0.75	0.2
Cd	1.5	<0.02
Co	1	<0.5
Cr	5	3.5
Cu	1.25	<1

Element	D0QF1	D0QF2
Fe	30	20
Hg	<0.05	<0.025
Mg	25	15
Mn	1.25	1
Na	40	10
Ni	2	0.5

Element	D0QF1	D0QF2
Pb	0.75	0.3
Sb	1.25	<1
Sn	0.5	<0.5
Tl	2.5	1.5
V	0.5	<0.5
Zn	5	3



Agriculture Specialty Products

GVS provides specialized products for the scientific industry, with a particular focus on solutions for the agriculture sector. Our products are developed in close collaboration with researchers and developers to ensure they meet the essential performance requirements of our customers.

Seed testing paper

A GVS offers non-toxic papers for use in the seed industry and agricultural research laboratories. Seed testing papers are made of cotton linters and/or pure cellulose; they do not contain any substances which could influence the growth of seeding. The pH range is between 6.0 and 7.5. Their special structure prevents fine seed roots from growing through the paper.

A A broad weight range enables the seed technician to maintain the required moisture level for the whole duration of the germination test period. Our filter paper can be supplied in a variety of formats and is available in white and three shades of blue and yellow to make the evaluation of fine roots easier.

A Our papers comply with ISTA (International Seed Testing Association) and AOSA (Association for official seed analysis) requirements.

GVS offer various formats for each procedure:

ATP: Top of paper

ABP: Between the paper

APP: Pleated paper

Features

A High purity cellulose grades

A Highest intra and inter-lot consistency

A Wide range of white and colored papers

A Comply with ISTA and AOSA requirements

A Customized sizes and shapes available



Ordering information

Grade	Description, Surface	Weight g/m ²	Thickness mm	ISTA* Method	AOSA** Method	Type of seeds	Standard Size mm
GP20001101765C01 GP20001101766C01	Pleated strips, white, 50 double pleats, plain	120	0.22	PP	PP	For pelleted, medium and large seeds	2000x110
GP0700037NC01 GP58058037NC01	White, creped	135	0.5	TP	P,TC		Ø70 580*580
GP19040034NC01 GP30040034NC01 GP33040034NC01 GP19040034NM01	White, creped	60	0.2	TP,BP	T,TC	Small specimens in petri dishes or Jacobsen Tanks with grass or flowers	220x400 190x400
GP0301604BC01 GP1202104BC01 GP2204004BC01 GP3004004BC01 GP3304004BC01	White, plain	75	0.15	TP			30x160
GP102102194C01 GP119120194C01 GP050000194C01 GP082000194C01	Filter board, dark blue, plain	430	0.68	TP, BP		All specimens like vegetable, herbs and flowers	Ø50 Ø82.6 102x102 119x120
GP190400140PEC01 GP190400140PEM01	PE-coated paper, plain	140	0.27	TP, BP		Cereals, towelling; the coating is minimizing root break-through and spread of the mold	190x400

*BP: Between papers, Pp: Pleated paper, TP: Top of paper

**B: Between blotters, T: Paper toweling, p: Cover petri dishes, TB: Top of blotters pp: pleated filter paper, TC: Top of creped cellulose paper.

Customized shapes and sizes are available on demand. Other seed testing grades available, please contact us for further information.

Soil testing paper

Soil analysis plays a crucial role in the evaluation of land's capabilities for different forms of agriculture and determines the most suitable type and quantity of fertilizer to maximize crop production.

To optimize plants growth, it is essential to determine the presence of nutrients and trace elements. An optimal filtration is the initial step to ensure rigorous and reliable results.

For this purpose, GVS offers a high-purity range of products, specifically designed for gravimetric analysis of soil nutrients and sample preparation for instrumental analysis.



Ordering information

Main grades	Basis weight g/m2	Retention μm	Filtration Speed Herzberg s/100ml	Characteristics
On demand	80	5-8	100	Low phosphate and potassium content
On demand	80	8-10	450	Low phosphate and potassium content
GP090000292C01 GP220400292C01	87	5-8	500	Low nitrogen content
On demand	97	5-8	650	Low nitrogen content
On demand	84	2-3	1200	Very fine particle retention, particularly suitable for ICP-MS analysis
On demand	84	2-3	1200	Suitable for colorimetry for phosphorous analysis

Rolls, sheets and final discs formats available in various sizes.

Discover our new specimen collection card

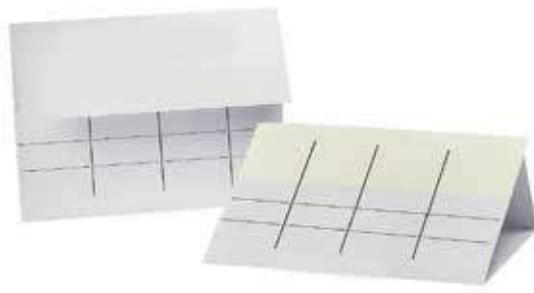
Our new collection card is designed to capture diverse small Eukaryotic organisms including plants, fungi, insects, and parasites.

Engineered with a protective cover, the card allows for live collection and direct crushing of organisms onto the specialized collection paper eliminating the need for complex preparations beforehand.

Our collection paper is made from pure cotton material and treated with chemicals to ensure long-term preservation of nucleic acids at ambient temperatures for over two decades. The innovative design features four distinct areas, enabling the collection of multiple samples of the same nature or repeated samples of the identical specimen(replicates). This not only enhances result accuracy but facilitates. Also, higher quantities of DNA recovery.

Features

- ADNA-free card for higher accuracy of the results
- AHigh quality STR profiling and NGs studies
- ADirect-multiplex PCR and Quantitative PCR
- ALong-term storage and transportation of samples at ambient temperature
- AUser-friendly design to facilitate collection, avoid cross-contamination and to protect the bio samples
- ACustomizable upon request



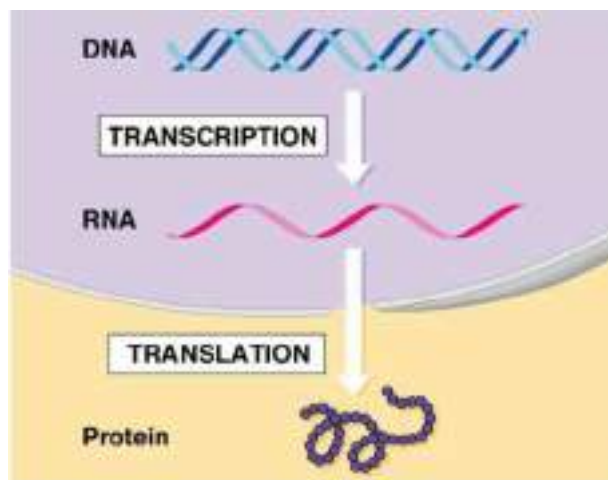
Reagents&Chemicals

Product collection



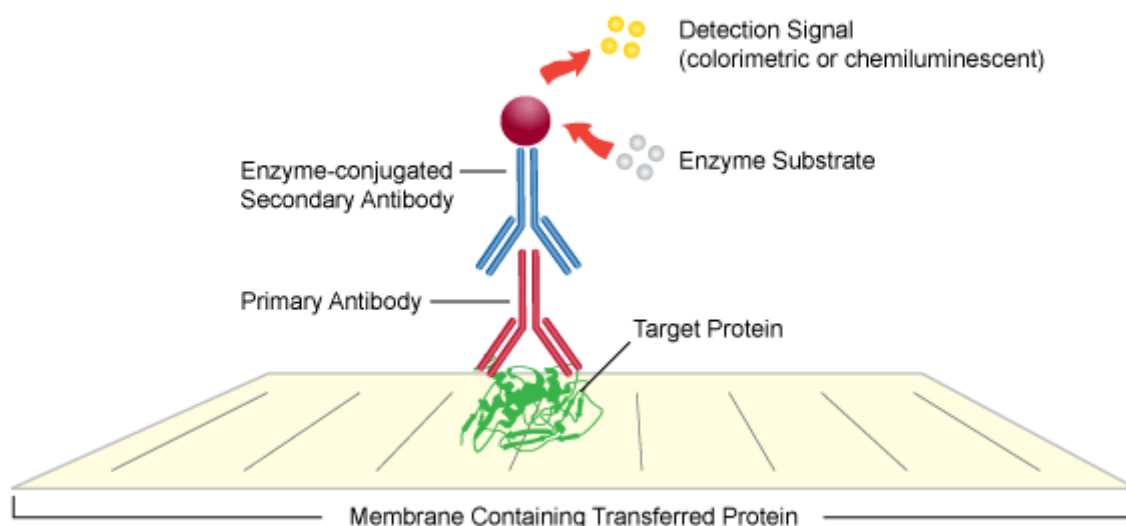
Westen & Northen Blot

Molecular analysis studies subcellular components such as proteins and nucleic acids (DNA, RNA). These molecules can be detected by various blotting techniques. The sample of interest is separated according to size by electrophoresis through a gel. Molecules from the sample are transferred and bound to a microporous membrane. Then, specific molecules of interest are detected using another molecule which specifically binds to the molecule of interest and can be detected by color, light or radioactivity.



Western Blot

Western blotting is a common and important technique used in molecular biology. It is used to detect a specific protein or protein fragment from a complex mixture such as a cell lysate, tissue extract, blood or serum sample or culture supernatants. The complex mixture is separated according to size by gel electrophoresis and then transferred to a membrane. A protein of specific interest is immunodetected using primary and secondary antibodies.



Western Blot Application Examples:

- A Protein expression and modification studies, may be quantitative;
- A Amino acid analysis;
- A Diagnostics development;
- A Medical diagnosis such as for HIV and Lyme disease.



Electrophoretic separation of proteins

Separation into polyacrylamide gel according to molecular weight. In order to separate the proteins of lower molecular weight, use of more concentrated gel is required.

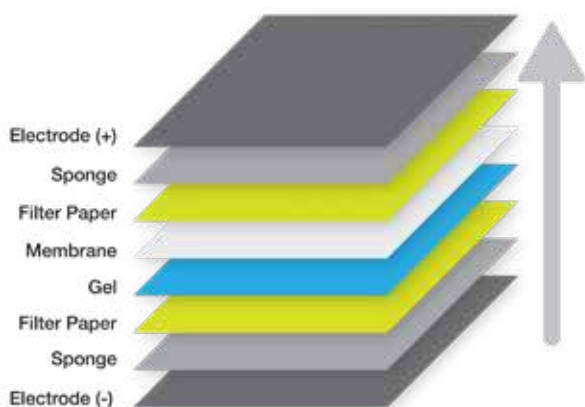
Transfer of proteins

Transfer from gel onto membrane followed by:

- A Blocking;
- A Applying a primary antibody specific for your protein of interest;
- A Applying secondary antibody that will recognize the primary antibody.

Role of protein binding

Set up for transfer



TYPICALLY TWO TYPES OF MEMBRANES:

- A Nitrocellulose (hydrophilic)
- A Polyvinylidene fluoride (hydrophobic)

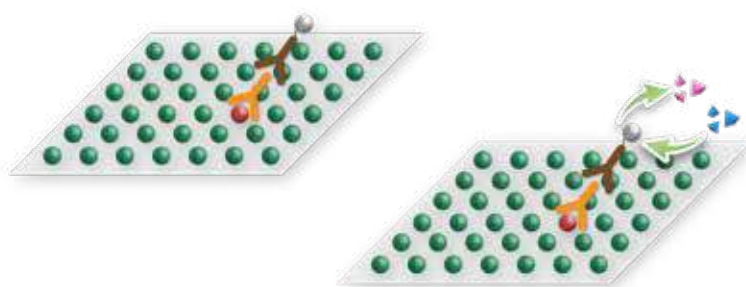
Protein to membrane binding interactions:

hydrophobic, electrostatic, dipolar



Detection of proteins

Proteins can be detected by immunodetection methods which use enzyme conjugated/labeled secondary antibodies. When the enzyme substrate is added, a product is formed. This product can be detected by fluorescence, colorimetrically, or by chemiluminescence. Enhanced chemiluminescence (ECL) produces light as a by-product when the substrate is catalyzed by the enzyme. This light is then captured on X-ray film or by a digital imaging system.



Transfer Membranes

Unlike many transfer membrane suppliers, GVS Filter Technology manufactures all of its nitrocellulose, PVDF membranes that we sell. Our transfer membranes are used in key research and testing done around the world.

PVDF

The PVDF-Plus is a naturally hydrophobic transfer membrane designed to deliver the highest binding capacity and lowest background in protein analysis applications.

Nitrocellulose

GVS Filter Technology manufactures two pure nitrocellulose transfer membranes. NitroBind is the classic unsupported pure nitrocellulose membrane used for all protein and immunoblotting applications. NitroPure is a supported pure nitrocellulose membrane combining the characteristics of nitrocellulose with the strength of nylon. It outperforms standard nitrocellulose in reprobing applications of DNA/RNA/Protein when extensive handling is required. Most other suppliers buy membranes from a manufacturer and sell them under their label. The chart below shows which of the market leaders actually make the transfer membranes they sell.

Membrane	Features	Benefits	Choose by Detection Systems	Choose by Procedures
NitroPure	Pure Nitrocellulose	Pure nitrocellulose is the membrane of choice for protein and immunoblotting techniques, as well as any other procedures that require optimum resolution. Binding Capacity - 100 µg/cm ²	Radiolabeled, Chromogenic and Chemiluminescent Detection Systems	Westerns Protein & Immunoblotting Northerns Southern
NitroPlus	Supported Pure Nitrocellulose	Supported pure nitrocellulose is used in procedures requiring the highest sensitivities, low backgrounds and rigorous handling. The membrane can be reprobed many times. Binding Capacity 100 µg/cm ²	Radiolabeled Detection Systems Chemiluminescent and Biotinylated Detection Systems	Northern Southern Multiple Rehybridizations Colony and Plaque Lifts
PVDF-Plus	Hydrophobic PVDF Membrane	Hydrophobic PVDF membrane is designed for protein sequencing, western transfers and amino acid analysis. Binding Capacity - 125 µg/cm ²	Chemical compatibility allows the use of all commonly used stains	Western Transfers Protein Sequencing Amino Acid Analysis

Selecting a Membrane

Selecting the appropriate membrane is critical to the success of a nucleic acid or protein transfer procedure.

GVS Filter Technology manufactures many types of membranes for hybridization technology, each exhibiting different performance characteristics which can directly affect the outcome of a specific technique. Below are some of the more frequently performed procedures and features of hybridization membranes.

Rehybridizations

GVS Filter Technology manufactures membranes recommended for rehybridization procedures: Magna Nylon, NitroPlus Nitrocellulose supported and NitroPure, a supported pure nitrocellulose. NitroPlus Nitrocellulose supported membranes can be most frequently reprobed. On nylon membranes, the number of reprobing steps is a function of the amount of hydrolysis to which the membrane is exposed during the protocol, and the additive effects of hot water, sodium hydroxide and an acidic environment. Sodium hydroxide solutions deteriorate the nylon matrix and are not recommended in procedures where reprobing steps are required.

The polyester support web used in manufacturing NitroPure allows the membrane to be reprobed several times. Because the binding capacity of nitrocellulose is less than that of nylon (100 µg/cm² vs. 400 µg/cm²), the potential number of rehybridizations is fewer. See pages 105-107 for more details.

UV Crosslinking

For covalent binding of nucleic acids to a transfer membrane, GVS Filter Technology membranes can be UV Crosslinked by following the manufacturer's instructions. It is particularly recommended when working with short fragments, small samples, or low numbers of base pairs, because of the improved resolution this technique offers.



Protein Blotting

NitroPure nitrocellulose and PVDF-Plus membranes are recommended for use in protein blotting. Nitrocellulose membranes are able to be more thoroughly blocked, reducing the high background potential associated with protein blotting. PVDF membranes are more resistant to the harsh chemicals used in Edman degradation.

Alkaline Blotting

For more rapid transfers, an alkaline blotting procedure can be used with MagnaProbe or MagnaCharge membranes. Alkaline blotting is not recommended when reprobing is required. Please see page 125 for more details.

Staining Procedures

NitroPure, NitroPlus and PVDF-Plus membranes are recommended for procedures that require a staining step with India Ink, Coomassie Blue, Colloidal Gold, or any other commonly used stain. Nylon membranes irreversibly bind many stains.

Reducing Backgrounds

There are many sources of background problems, or low signal-to-noise ratios. Some of the most common include: contaminated probes, contaminated hybridization solutions, and incorrectly chosen stringency levels. Nonfat milk should not be used as a blocking agent as it may increase nonspecific binding. GVS Filter Technology membranes are all manufactured by strict quality control procedures, ensuring a uniform membrane with consistently low backgrounds. Please refer to pages 91-93 for more details.

Troubleshooting Common Blotting Problems

Many blotting problems can be eliminated by observing the following recommendations.

Blotchy or incomplete transfers are caused by poor contact between the gel and the membrane. Even after careful smoothing of the membrane to the gel, incomplete degassing of transfer solutions can cause air pockets to form. Evolving gas from Tris or, in the case of protein transfers, methanol, can disrupt the tight contact necessary between the membrane and the gel for successful transfers. Smeared or skewed bands are often caused by uneven contact between the gel and the membrane, or the membrane and the chromatography paper. To avoid this problem, roll a pipet down the membrane after it has been applied to the gel, and once again over the chromatography paper after it has been applied to the membrane. Do not move the membrane until the transfer is complete, as this will cause smearing.

Protocols for Protein Applications

NitroPure and NitroPlus Nitrocellulose Membranes

Gel Preparation

Western (Protein) Blotting

Gels should be stained after transfer with Coomassie Blue, Fast Green, Amido Black, or any other appropriate stain.* Soak the gel for 1 hour in a transfer buffer made of: 25 mM Tris-HCl/pH 8.0, 0.15 M glycine, 20% methanol. *GVS Filter Technology does not recommend staining before transfer. Proteins may precipitate in the membrane and not be able to transfer.

Transfer Membrane Preparation

Completely soak the membrane in deionized water, and then in transfer buffer.

Electroblotting

Assemble the membrane and gel in the electroblotting unit. Place the membrane on the anode (positive) side of the gel. Transfer according to manufacturer's instructions. Remove and wash thoroughly with transfer buffer.

Capillary Blotting

Prepare gel assembly by the method of Southern (see page 115). Transfer for 2 hours to overnight. Use transfer buffer of 10 mM Tris-HCl/pH 7.5. After the transfer step, determine transfer efficiency by staining the blot or gel by standard methods.

Blocking Procedures



Step 1: First Wash

Block the blot in PBS buffer (0.9% NaCl, 10 mM sodium phosphate/pH 7.2) containing 5% BSA, Tween 20 or high purity gelatin for 1 hour, with gentle agitation.

Step 2: Primary Antibody Binding

Remove the PBS buffer solution from blot completely. Dilute the first antibody in 50 ml of fresh PBS buffer solution. Incubate the blot in the PBS blocking buffer/antibody solution for 1 hour at 37°C with gentle agitation. Use a ratio of 5-10 ml of solution to 100 cm² of membrane.

Step 3: Second Wash

Wash the membrane in 100 ml of fresh PBS buffer solution (without antibody) with 0.1-0.3% Tween-20. Agitate in a shaker for 5 minutes. Repeat the wash step 2 times. (Note: Increasing the number of short washes reduces the potential for high backgrounds).

Detection

Thoroughly remove the PBS buffer solution and overlay the blot with an antisppecies (second) antibody, or with protein A (radio-labeled or enzyme linked) for 1-2 hours at room temperature with gentle agitation. The final concentration of radiolabeled second antibody solution should be 1-2x 10⁵ dpm/ml of PBS buffer solution. Enzyme-linked second antibody solutions should be made at a 1:1000 titer in PBS buffer solution. Repeat the wash step described in the procedure above.

Signal Development

The choice of signal development method is dependent on the type of probe used. Radiolabeled probes are developed and quantitated by autoradiography. Enzyme-conjugated labels (horseradish peroxidase or alkaline phosphatase) are developed and quantitated with the appropriate substrate solution.

Probe Removal (Stripping)

Do not allow the filter to become dry, or irreversible binding of the probe will result.

Wash the membrane at 60°C for 30 minutes in 0.05 M sodium phosphate/pH 6.5, 10.0 M urea, 0.1 M 2-mercaptoethanol, or wash the membrane in 0.2 M glycine-HCl, 0.5 M NaCl for 5 minutes. Rinse in 0.1 M NaOH or 0.5 M Tris for 10 minutes.

PVDF-Plus

Western Blot General Protocol

Main Solutions and Reagents for running; transfer and blocking

Running buffer 10X:

A Tris base: 250 mM

A Glycine: 1.90 M

A SDS: 1%.

The pH of the buffer should be 8.3 and no pH adjustment is required. Store the running buffer at room temperature and dilute before use.

Running buffer 1X:

10% 10X Running buffer

90% DW H₂O

Tris Glycine Buffer 1X:

25 mM Tris base

190 mM Glycine

Transfer Buffer:

20% MetOH

0.25X Tris Glycine buffer

Phosphate Buffered Saline (PBS) 1X:

137 mM NaCl

2.7 mM KCl

10 mM Na₂HPO₄

1.8 mM KH₂PO₄

PBS Tween (PBST) 1X:

0.05% Tween

99.95% PBS 1X

Blocking Buffer:

5% skim milk (or Bovine Serum Albumin - BSA)

95% PBST

PROCEDURE

Electrophoresis – protein separation

1. Prepare appropriate SDS-Polyacrylamide (SDS-PAGE) gel



for electrophoresis.

Type of SDS-PAGE gels according to the protein size; the lower is the protein size, the higher concentration of gel should be used.

2. Prepare the sample to be loaded in the wells of SDS-PAGE gel.
Preparation of the sample and the sample buffer depends on the type of the protein and manufacturer's recommendations.
3. Load protein marker and equal volumes of protein sample into corresponding wells of SDS-PAGE gel.
Fill the empty wells with the sample buffer.
4. Fill the electrophoresis tank with running buffer.
5. Run the gel in following conditions:
 - a. 120 V for 20-30 minutes (or until the sample reaches the stacking gel);
 - b. 180 V for 30-45 minutes (separation of the proteins under constant voltage).

Electrotransfer of Proteins

1. In case of PVDF membrane perform membrane equilibration by:
 - a. Immersing membrane in Methanol for 1 minute;
 - b. Followed by immersion of membrane in DW water for 5 minutes;
 - c. Followed by immersion of membrane in Transfer Buffer for 10 minutes.Membrane must be wet at all times.
2. Assemble the transfer sandwich according to scheme presented in Figure 1.
Ensure there are no bubbles between the gel and the membrane.
3. Place the cassette in the transfer tank and fill the Electroblotting tank with the transfer buffer (ensure that the sandwich is covered with the buffer).
4. Run the Electroblotting for 1 hour at 120 V in an ice bath.
Running conditions might need optimization.

Blocking and antibody incubation

1. Incubate membrane for 1h in the blocking buffer at room temperature or overnight at 4°C with constant agitation.
The active side of the membrane must always be in contact with the solution.
2. Place the blot in the primary antibody solution and incubate with agitation for 1 hour at room temperature.
The solution should move freely across the surface of the membrane (dilution of the antibody depends on the producer recommendation).
3. Wash membrane by:
 - a. Immersion in PBS-Tween (PBST) for 10 minutes with agitation;
 - b. Immersion in PBS-Tween (PBST) for 5 minutes with agitation (2 times).
4. Place the blot in the secondary antibody solution (HRP conjugates) and incubate with agitation for 45 minutes at room temperature.
Dilution of the antibody depends on the producer recommendation.
5. Wash the membrane according to the washing steps described in point 3 of Blocking and antibody incubation section.

Detection via chemiluminescence

1. Prepare a 1:1 mixture of chemiluminescent substrate (ECL HRP, depending on sensitivity choose Light Wave; Light Wave Plus or Light Wave Max).
2. Place the blot in the container with substrate and incubate for 3 minutes.
3. Remove the excess of the solution off the membrane.
4. Place membrane in blot development folder and gently smooth out all the bubbles using a roller.
5. Expose the film to the imaging system.



Troubleshooting Guide and Application Tips

Problems and Solutions Unsuccessful Rehybridizations

My membrane is deteriorating during the rehybridization procedure?

If so, what type of membrane are you using? GVS Filter Technology manufactures one type of membrane recommended for rehybridization procedures: NitroPlus, a supported pure nitrocellulose. A more resilient membrane during applications requiring multiple reprobings. Nitropure (a supported nitrocellulose) was developed for this reason. The polyester support web used in manufacturing NitroPlus allows the membrane to be reprobed several times.

My application demands an extensive number of reprobings and I'm losing signal?

If so, what type of membrane are you using? Because the binding capacity of nitrocellulose is less than that of nylon ($100 \mu\text{m}/\text{cm}^2$ vs. $400 \mu\text{m}/\text{cm}^2$), the potential number of rehybridizations is fewer as compared to nylon membranes. The number of reprobing steps is a function of the amount of hydrolysis to which the membrane is exposed during the protocol, and the additive effects of hot water, sodium hydroxide and an acidic environment.

My probe is not stripping from the membrane, how should I change my procedure?

Did you let the membrane dry after the initial probe was applied? Drying causes irreversible binding of DNA to microporous membranes. If this has occurred, look through the helpful tips listed below.

My probe won't strip from the membrane, how can I rescue this blot?

Try preparing a new probe and using a different detection protocol. For example, if you prepared a biotinylated probe and detected with a streptavidin conjugate, omit the biotin-streptavidin step during rehybridization by using a directly conjugated probe, such as an alkaline phosphatase conjugated probe. If you used a radioactive probe, use a chemiluminescent system to detect after the next hybridization (or vice versa). If you have enough time and are using radioactive probes (e.g., pgs 106-107), simply let your first probe decay before the second round of hybridization.

Signal Problems

The nucleic acid did not transfer completely to the membrane, what should I do?

Blotchy or incomplete transfers are caused by poor contact between the gel and the membrane. Even after careful smoothing of the membrane to the gel, incomplete degassing of transfer solutions can cause air pockets to form. Evolving gas from Tris or, in the case of protein transfers, methanol, can disrupt the tight contact necessary between the membrane and the gel for successful transfers.

My signal is low, what are the common reasons for this?

When you have low signal, it is best to check your reagents by performing extra controls. The most common reason for poor signal is a bad probe. Prepare a new probe and perform a dot blot comparing the old and new probes. Do you see a difference between the probes? Even nonradioactive probes can deteriorate during storage. Is the signal weak for the new probe as well? Then your detection enzymes may be bad or the reagents used to prepare the probe are bad. You might also blot a small amount of unlabeled complementary DNA and hybridize to the new probe. Are you seeing signal from the blotted probe but not the hybridized DNA? If so there could be a problem with your hybridization protocol, such as the wash temperature or your buffers. If you're using nonradioactive detection methods, test your enzymes and substrates as well.

Background Problems

Everything was working fine and now suddenly I have high backgrounds, Why?

Did you make up a new probe? If so, was there adequate separation of the unincorporated label from the incorporated? Are you using old solutions? There may be contamination. Usually in these cases it is best to prepare new solutions, new probes and use new reagents. This is often the fastest way to get your system working again.

Miscellaneous

My membrane changed color during my blotting procedure, should I be concerned?

No. Slight color changes in GVS Filter Technology new positively charged membranes are expected and have no effect on results. These color changes will vary according to the blotting procedure used and the pH of solutions. GVS Filter Technology uses this color change to ensure quality during the manufacturing procedure.



High Backgrounds

Poor agitation during prehybridization and hybridization steps can lead to insufficient blocking of the entire membrane. Due to the strength of the internal support web, NitroPlus can withstand higher levels of agitation without tearing or ripping. Incorrect probe concentration can occur when using dextran sulfate in hybridization or prehybridization solutions. Dextran sulfate causes the effective concentration of the probe to increase because it excludes the probe from the volume of solution the dextran sulfate polymer occupies. When using dextran sulfate, lower the probe solutions to less than 10 ng/ml of the solution. When not using dextran sulfate, maintain the optimum probe concentration at 25-40 ng/ml of solution. Residual agarose on membranes can cause a fuzzy background to appear on blots. Be sure to wash nylon membranes with 5 x SSPE at 60°C, after the immobilization step. Due to the strength of the membrane, supported membranes (NitroPlus) can be more easily washed without tearing or ripping.

Troubleshooting Gel Casting Procedures

Troubleshooting blotting problems begins with the correct gel casting procedures. Skewed, streaked, incomplete, or nonuniform transfers can be the results of poorly cast gels. The following recommendations are made for setting up the gel.

Gels greater than 4mm thick can interfere with the free transfer of nucleic acids.

Be sure that the gel tray is level before casting the gel. If the surface is not level, non-uniform transfers may result. Maintain a gel casting temperature of 55-70°C degrees, and be sure that the gel particles are completely dissolved. Undissolved agarose particles can result in streaked or skewed bands. Immediately after gel casting and solidification, submerge the gel slab in electrophoresis buffer. This will prevent the formation of an impermeable "skin" over the surface of the gel which can inhibit transfer of nucleic acids from the gel. After setting up the blotting assembly, be sure to:

- Invert the gel so that the underside of the gel is the side in contact with the membrane.
- Allow the transfer solutions enough time to "breathe," so that they may degas completely. Incompletely degassed transfersolutions evolve gas after the blotting assembly is set up, and can cause air bubbles between the membrane and gel that can impede the transfer of nucleic acids.

Probe Related Background Problems

While there are several ways to decontaminate probe solutions, the following methods are two of the most efficient. The second method can be rapidly performed with minimum effort.

Method 1: Phenol/Chloroform extract the probe to remove unincorporated nucleotides, proteins, and other contaminants.

Method 2: Clean the probe by adding a small volume of the hybridization buffer to the probe and filtering it through an Abluo 25AS low protein binding cellulose acetate syringe filter. Contaminants in the probe solution will be held back by the 0.2µm filter with no probe loss caused by nonspecific binding to the filtration membrane. Probe length is also a factor contributing to background levels seen on transfer membranes. Between 250-800 base pairs is the recommended optimum length of a probe; probe lengths smaller or larger than this can lead to a low signal-to-noise ratio. Probes smaller than 250 base pairs often bind poorly and may require less stringent hybridization and wash procedures. Probes larger than 800 base pairs may contain a wider variety of size classes, which can lead to extraneous binding to the transfer membrane.

Hybridization Solution Related Background Problems

Contaminated hybridization solutions are another common source of background problems. Hybridization solutions should be filtered with a pure cellulose acetate Abluo 25AS syringe filter, to remove contaminants.

Additionally, all solutions and buffers should be made fresh before each transfer with sterile, double-distilled, deionized water, and very high grade reagents. After fresh buffers are made, they should be filtered with an Abluo 25AS syringe filter to ensure that no contaminants remain in the solution. Formamide-based hybridization solutions are a frequent source of background noise, and the formamide must be freshly made and deionized.

Optimized Blocking Solutions

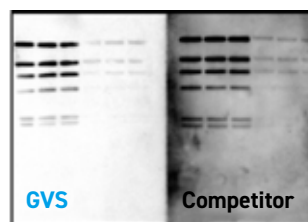
A concentration of 5-7 x Denhardt's solution is recommended for use with nylon membranes. Exceeding this level can lead to quenching of the signal.

Backgrounds Associated with Reprobing

A follow-up autoradiograph after probe removal is strongly recommended to determine if the probe has been fully stripped. Otherwise, backgrounds can appear in blots that have not been fully erased.



Nitrocellulose



GVS Nitrocellulose Pure Transfer Membrane is the membrane of choice for all protein or immunoblotting applications. The high sensitivity of GVS Nitrocellulose Transfer Membrane ensures excellent results in all transfers, especially in protein blotting.

Unlike PVDF, nitrocellulose wets out naturally, does not require methanol, and will not turn hydrophobic during the transfer process.

Nitrocellulose is very easily blocked and does not need the many blocking steps required with PVDF.

Excellent results will be obtained with all detection systems: antibody/antigen, radiolabeled, biotinylated, and chemiluminescent, giving you a great amount of flexibility in designing your procedure.


Supplied in various porosity and format.

Features & Benefits

- A For procedures that require optimum resolution
- A Membrane of choice for protein or immunoblotting applications
- A Low background, easily blocked
- A BSA binding capacity up to 100 µg/cm²
- A Wets out naturally
- A Compatible with all detection systems

Typical Applications

- A Western Blotting
- A Protein & immunoblotting
- A Northern Blotting
- A Southern Blotting
- A Dot/slot blotting
- A Radiographic, chromogenic and chemiluminescent detection systems

Product	Competitors
	Amersham HyBond-C - BioRad Nitrocellulose - Millipore Immobilon-NC Plus - Schleicher & Shuell (S&S) Protran

Ordering information

	Dimensions (mm) Packaging	70x84 mm 10/pk	100x100 mm 10/pk	150x150 mm 5/pk	200x200 mm 25/pk	200x3000 mm 1/pk	300x3000 mm 1/pk
Pore sizes	0.22 µm	1213991	1213999	1215463	1215392	1215469	1215458
	0.45 µm	1213888	1213314	1215476	1221976	1215483	1215471



Supported Nitrocellulose



GVS Supported Nitrocellulose Transfer Membrane combines the binding characteristics of nitrocellulose membrane with the strength of nylon membrane. It can be easily used in any protocol utilizing unsupported nitrocellulose transfer membrane.

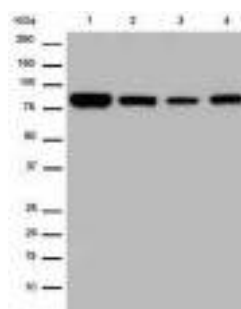
Supplied in various porosity and format

Features & Benefits

- ASupported for procedures requiring rigorous handling
- AStrong - will not curl, bend or crack after baking
- AHigh sensitivities, low backgrounds
- AMultiple reproblings
- ABSA binding capacity up to 100 µg/cm²
- ATriton Free

Typical Applications

- ANorthern Blotting
- ASouthern Blotting
- AMultiple re-hybridizations
- AColony/plaque lifts
- ADot/slot blotting
- ARadiographic detection systems
- ACHemiluminescent detection systems
- ABiotinylated detection systems



All lanes : Anti-Furin antibody [EPR14674] (ab183495) at 1/5000 dilution

Lane 1 : HepG2 whole cell lysate

Lane 2 : HeLa whole cell lysate

Lane 3 : U87-MG whole cell lysate


Lane 4 : Caco-2 whole cell lysate

Lysates/proteins at 20 µg per lane.

Secondary

Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size : 87 kDa

Product	Competitors
	Amersham HyBond-C Extra - Amersham HyBond-C Super Biorad Supported Nitrocellulose

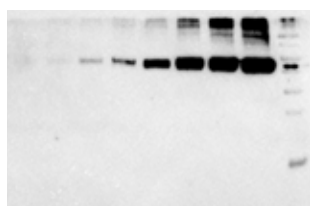
Ordering information

	Dimensions (mm) Packaging	70x84 mm 10/pk	100x100 mm 10/pk	150x150 mm 5/pk	200x200 mm 5 /pk	200x3000 mm 1/pk	300x3000 mm 1/pk
Pore sizes	0.22 µm		1214560	1212669	1212689	1212690	1212632
	0.45 µm	1214978	1213943	1212596	1212597	1212602	1212590

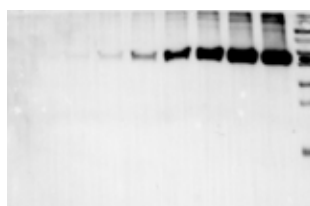
Polyvinylidene Fluoride PVDF



GVS



Competitor



Images were obtained by following GVS Western Blot General Protocol

Cell Lane: HeLa Whole Cell

Detection substrate: Light Wave Plus

Primary antibody: Beta Actin Polyclonal Antibody (dilution 1:1000)

Secondary antibody: Goat Anti-Rabbit IgG Antibody (H+L) (dilution 1:10000)

Analyzed protein: Beta actin, MW: 42 kDa

GVS PVDF is a naturally hydrophobic, unsupported transfer membrane. It has a high binding capacity, which prevents protein from passing through the membrane, and a low background that provides for an excellent signal-noise ratio. It also has exceptional tensile strength, preventing it from cracking, tearing, breaking or curling. This membrane also has broad chemical compatibility, which is important when used with common stains such as Amido Black, Colloidal Gold, Coomassie Blue, India Ink and Ponceau-S. GVS PVDF will not degrade, distort or shrink when a high concentration of methanol is used for destaining.


Its exceptional strength, high binding capacity and chemical compatibility make GVS PVDF ideal for use in Western blotting, immunoblotting, and solid phase assays and plaque lifts.

Features & Benefits

- A**Superior strength: Can withstand aggressive handling or be used with automated equipment without breaking or tearing
- A**Low extractables: Ensures tests will be clean with consistent results
- A**Exceptional sensitivity: Detects low-level components
- A**Hydrophobic: For high protein binding
- A**Lot-to-lot consistency: Quality checks ensure consistent binding for dependable results every time
- A**BSA protein binding capacity : 125 µg/cm²
- A**High range of chemical: Resistant to most commonly used chemicals compatible with chemically aggressive solvents

Typical Applications

- A**Western blotting
- A**Immunoblotting
- A**Solid phase assays
- A**Amino acid or protein analyses

Product	Competitors
 PVDF <i>Pure</i> Unsupported PVDF	Millipore Immobilon-P - Amersham HyBond - BioRad PVDF Shleicher & Shuell (S&S) Westran

Ordering information

	Dimensions (mm)	70x84 mm	100x100 mm	150x150 mm	200x200 mm	200x3000 mm	300x3000 mm
Packaging		10/pk	10/pk	5/pk	5/pk	1/pk	1/pk
Pore sizes	0.22 µm	1214588		1215037	1215032	1214726	1214429
	0.45 µm	1213992	1212644	1212636	1212637	1212783	1212639

LIGHTwave™ ECL SUBSTRATES FOR WESTERN BLOTTING

Introduction

LightWave is our product line of ECL HRP substrates for Western blotting. Our double enhancer proprietary technology allows for modulation of signal intensity and signal duration.

Each LightWave substrate is at the top of its respective market segment regarding performance/price ratio.

All LightWave substrates are:

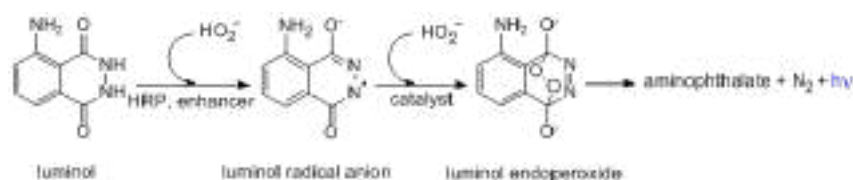
- Compatible with all chemiluminescence imagers and X-ray film detection
- Optimized for attaining low background and high signal to noise ratio
- Stable for 1 year at RT

All GVS substrates are protected by **US7803573**, **EP1962095**, **US7855287**, **EP1950207**, **US2012009603 (A1)**, **CA2742025**,

EP2405016, foreign equivalents and pending patents.

LightWave™ detection reagents are non-isotopic, luminol-based chemiluminescence substrate, designed for the chemiluminescent detection of immobilized proteins and immobilized nucleic acids conjugated with horseradish peroxidase (HRP).

LightWave™ is intended for research use only, and shall not be used in any clinical procedures, or for diagnostic purposes. Chemiluminescent substrates for horseradish (HRP) are two-component systems consisting of a stable peroxide solution and an enhanced luminol solution. To make a working solution, the equal volumes of the components are mixed together.



Storage/expiry

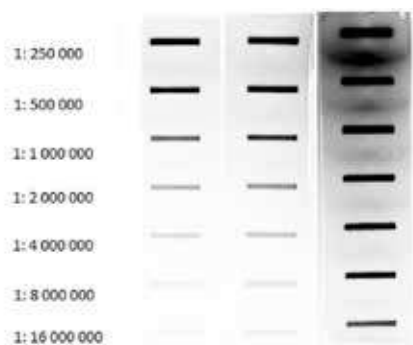
One year at room temperature (max. 25°C).

LightWave™ product line

Product	LightWave™	LightWave™ Plus	LightWave™ Max
Signal intensity	Medium	High	Ultra High
Signal duration	Medium	Extended	Short
Protein abundance	High	Medium	Ultra-low

Overview

HRP - Antibody dilutions



LightWave - Low picogram detection level

LightWave Plus - Mid femtogram detection level

LightWave Max - low femtogram detection level

Product	Suggested antibody dilutions	
LightWave™	Primary Ab	1:500 - 1:5,000
	Secondary Ab	1:20,000 - 1:100,000
LightWave™ Plus	Primary Ab	1:1000 - 1:15,000
	Secondary Ab	1:25,000 - 1:150,000
LightWave™ Max	Primary Ab	1:5000 - 1:100,000
	Secondary Ab	1:100,000 - 1:500,000

Product	Competitors
LIGHTwave™	PIERCE™ ECL PLUS - THERMO SCIENTIFIC™
	IMMOBILION® CLASSICO - MILLIPORE™
	WESTERN LIGHTNING™ PLUS - PERKINELMER
	WESTERNBRIGHT™ ECL - ADVANSTA
LIGHTwave™ Plus	CLARITY™ - BIORAD
	SUPERSIGNAL™ WEST DURA - THERMO SCIENTIFIC™
	AMERSHAM™ ECL PRIME™ - GE HEALTHCARE
	SUPERSIGNAL™ WEST PICO PLUS - THERMO SCIENTIFIC™
	IMMOBILION® CRESCENDO - MILLIPORE™
LIGHTwave™ Max	WESTERNBRIGHT™ QUANTUM™ - ADVANSTA
	CLARITY MAX™ - BIORAD
	SUPERSIGNAL™ WEST FEMTO - THERMO SCIENTIFIC™
	AMERSHAM™ ECL SELECT™ - GE HEALTHCARE
	WESTERNBRIGHT™ SIRIUS™ - ADVANSTA
	WESTERN LIGHTNING™ ULTRA - PERKINELMER

GVS Lightwave



Lightwave

Competitor Pico

Competitor Classico

Competitor ECL

Sample: Two-fold dilution series of HeLa whole cell lysate (abcam®) from 5 µg to 0.078 µg of total protein

Primary antibody: Rabbit-anti Human HDAC-1 (abcam®) 1:2000

Secondary antibody: Goat anti-rabbit IgG HRP (2mg/mL) (abcam®) 1:20000

Imaging: ImageQuant™ LAS 4000 (GE Healthcare)

Exposure time: 180 seconds

LIGHTwave™

Features

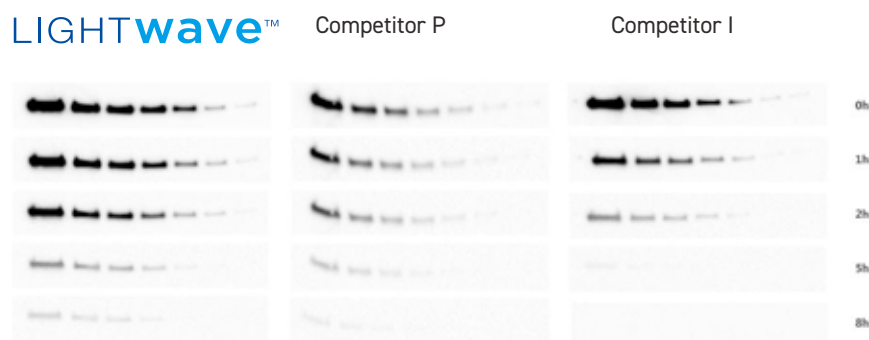
- Low picogram detection
- Ideal for routine analysis
- Working solution stable for at least three days
- The best entry level ECL substrate on the market
- Signal duration 5 hours
- Stable for 1 year at RT

Quick start protocol

- Perform electrophoresis, membrane transfer and antibody incubation and washes
- Prepare Lightwave™ ECL substrate by mixing equal volumes of the two solutions
- Apply Lightwave™ chemiluminescent substrate to the membrane (1 mL per 10 cm² of the membrane), incubate 2 minutes with the substrate
- Expose the substrate-treated membrane using a chemiluminescence imager or X-ray film

GVS LightWave vs Competitor Signal duration

Comparison of signal intensities at time points up to 20 hours post substrate addition. Exposure time is 180 seconds for each time point (0-2-5-8 hours).



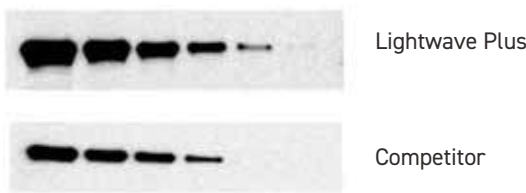
Ordering information

Product Code	Description
LW0001	LightWave™ Western blotting substrate 10 mL
LW0002	LightWave™ Western blotting substrate 250 mL



GVS Lightwave Plus

Plus
LIGHTwave™



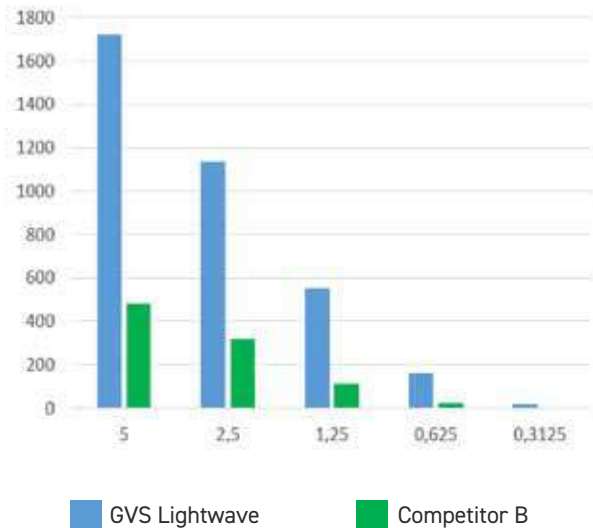
Western blotting detection of HDAC-1 on Hela cells

Hela cell lysate from 5 to 0,078 µg
Ab 1° Rabbit anti HDAC1 1:5000
Ab 2° Goat anti rabbit 1:50000
Exposure time: 3 minutes
Imager: LAS4000 (GEHC)

Features

- AMid femtogram detection
- AExtended signal duration
- AHigh range flexibility
- AWorking solution stable for at least three days
- AThe perfect ECL formulation combining great sensitivity and long signal duration
- ASignal duration 25 hours
- AStable for 1 year at RT

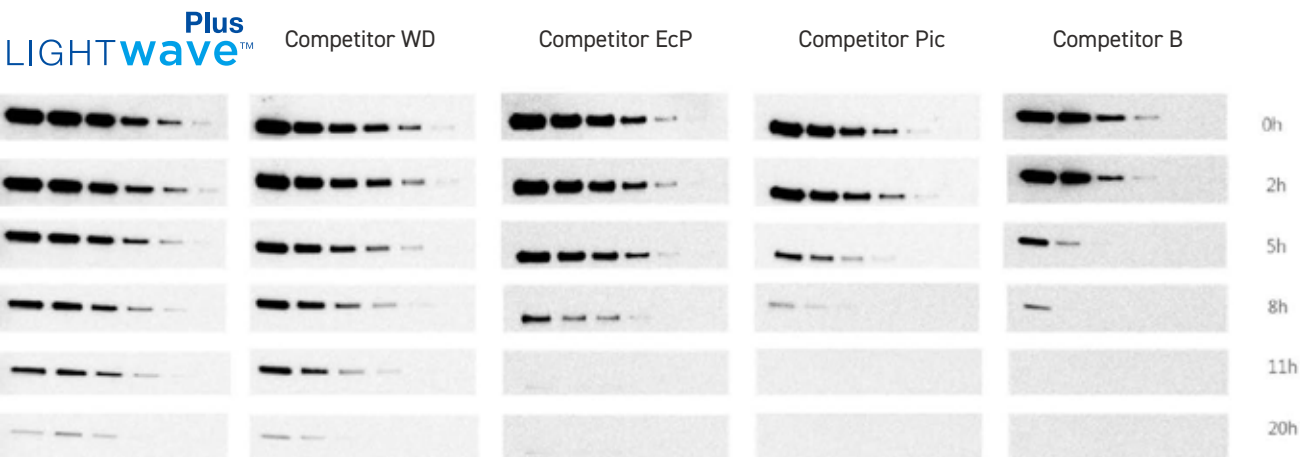
Signal to noise ratio



GVS LightWave Plus vs Competitor Signal duration

Signal duration

LightWave™ Plus provides an extremely extended signal duration when compared to most mid-level range ECL substrates. The HDAC-1 signal intensity variation over time was analyzed using LightWave™ Plus and its competitors (Figure 3).



Ordering information

Product Code	Description
LW0003	LightWave™ Plus Western Blotting Substrate 10 ml
LW0004	LightWave™ Plus Western Blotting Substrate 250 ml

GVS Lightwave Max

Max
LIGHTwave™

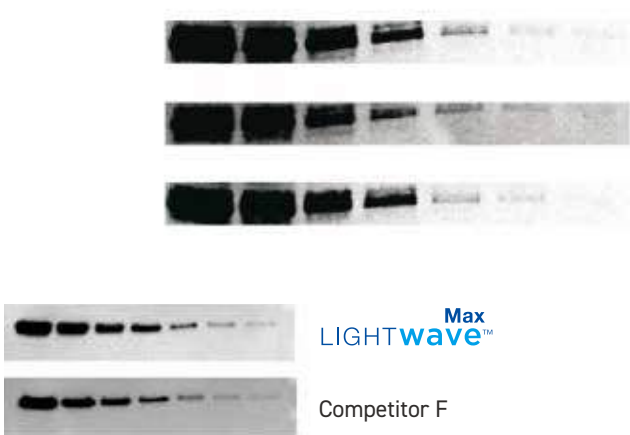


Figure 2. Low background for high sensitive detection with LightWave™ Max.

A) Western blotting detection of HDAC-1 on HeLa cell lysate with LightWave™ Max compared to Competitor F. Triplicate blots for each substrate containing 2-fold dilutions of HeLa whole cell lysate were incubated with primary antibody (Rabbit-anti Human HDAC-1) 1:15000 and secondary antibody (Goat anti Rabbit-HRP) 1: 300000 and were simultaneously imaged for 120 seconds with ImageQuant™ LAS 4000 (GE Healthcare).

B) Signal-to-noise ratio (S/N) analysis. LightWave™ Max displays the best combination of sensitivity and signal with low background.

Competitor F

Competitor E-S

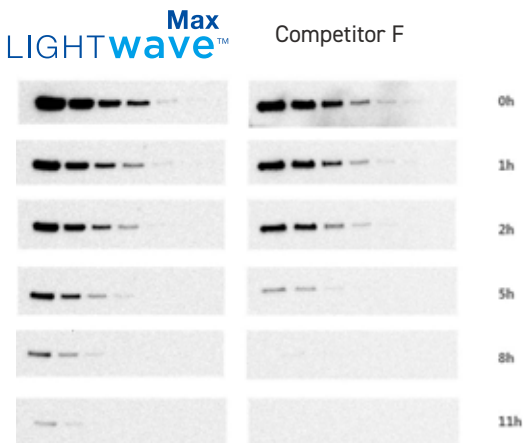
Features

- ALow femtogram detection
- ALow antibody consumption to save your money
- AWorking solution stable for at least three days
- AThe ECL substrate with the highest signal on the market
- ASignal duration 8 hours
- AStable for 1 year at RT

Signal to noise ratio



Signal duration



Ordering information

Product Code	Description
LW0005	LightWave™ Max Western Blotting High Sensitive Substrate 10 ml
LW0006	LightWave™ Max Western Blotting High Sensitive Substrate 100 ml

Figure 3. Signal duration of LightWave™ Max compared to Competitor F.

Quadruplicate blots for each substrate containing 2-fold dilutions of HeLa whole cell lysate were incubated with primary antibody (Rabbit-anti Human HDAC-1) 1:15000 and secondary antibody (Goat anti Rabbit-HRP) 1: 300000 and were simultaneously imaged with ImageQuant™ LAS 4000 (GE Healthcare) at time points up to 11 hours post substrate addition.



Neutral Nylon 66 Membrane



GVS Neutral Nylon Transfer Membrane is a pure polymer impregnated in by an inert polyester web. It is naturally hydrophilic and optimized for protein binding and for high, reproducible binding of nucleic acids.

Reliable Quality, Increased Efficiencies

This controlled microporous Nylon 66 membrane is cast on an inert, internal support web that gives it added dimensional strength and stability to prevent cracking, tearing, curling and breaking. This added strength and durability is essential in protocols that require aggressive handling, such as colony lifts and plaque lifts.

In addition to the dimensional strength and durability of GVS Neutral Nylon Transfer Membrane, its retention of macromolecules can also be enhanced using UV cross-linking. This process can be used to maximize the signal retention of nucleic acids and preserve the integrity of DNA or RNA transfers. The purity and consistency of GVS Neutral Nylon Transfer Membrane, coupled with its added durability and sensitivity, make it an ideal membrane for use in medical research, scientific studies or test confirmations where

precise biological pattern replications, such as DNA and RNA transfers, are integral to the success of the procedure.

Features & Benefits

- A**Supported: has added strength and durability preventing distortion or contamination in multiple reprobing
- A**High binding capacity: with a nucleic acid binding capacity of approximately 350 µg/cm², Magna Nylon - Transfer Membrane can bind a wide range of fragment sizes, increasing the efficiency of transfers
- A**Hydrophilic: eliminates the need for wetting agents that can potentially interfere with biological processes
- A**Lot-to-lot consistency: quality checks ensure lot-to-lot consistency, both down and across the polyester web, for dependable results every time
- A**Maximum Operating Temperature 356°F (180°C)
- A**Autoclavable

Typical Applications

- A**Southern transfers
- A**Northern transfers
- A**Protein binding
- A**Microarrays
- A**Macroarrays
- A**Dot/Slot blotting
- A**Radiolabeled detection systems
- A**Non-radiolabeled detection systems
- A**Colony lifts
- A**Plaque lifts
- A**Library screening

Product Characteristics

Pore Size (µm)	Flow Time (s)	Volume/Vacuum (mL/ in Hg)	Flow Rate (mL/min/ cm ² @ 10 psi)	Bubble Point (psi)	Thickness (µm)
0.2	113-277	250/20	5.74-14.08	40-68	140-190
0.4	65-205	250/20	7.76-24.47	32-57	140-190

Disks and Sheets

Ordering information

Dimensions Packaging	82 mm 50/pk	85 mm 50/pk	132 mm* 50/pk	137 mm 50/pk	150x150 mm 5/pk	200x200 mm 5/pk
Pore sizes						
0.22 µm		1213410				1213419
0.45 µm	1213370	1214428*	1213372	1213373	1213375	1213379

*100/pk

Dimensions Packaging	200x3000 mm 1/pk	300x3000 mm 1/pk
Pore sizes		
0.22 µm		1213405
0.45 µm	1213403	1213364

Reprobing Charged Nylon 66 (NY+)



MAGNAProbe
Reprobing Charged
Nylon

Features & Benefits

- A Supported charged nylon 66 membrane
- A Specifically designed for multiple reproblings
- A Used for both radiolabelled & non-radiolabelled detection systems
- A Can be used for alkaline blotting
- A Nucleic acid binding is 450 µg/cm²
- A Maximum Operating Temperature 356°F (180°C)
- A Autoclavable

Typical Applications

- A Radiolabelled & non-radiolabelled detection systems
- A Northern Blotting
- A Southern Blotting
- A Multiple Reproblings
- A Alkaline Blotting
- A UV Crosslinking

GVS Nylon Reprobing Charged transfer membrane is a positively charged modified nylon 66 membrane, specifically designed to allow for numerous reproblings.

The high binding capacity of 450 mg/cm² makes GVS Nylon ideal for all Southern and Northern applications, including alkaline blotting. GVS Nylon is ideally suited for all probes both radioactive and non-radioactive, including chemiluminescent and biotinylated detection systems.

GVS Nylon 66 reprobing Charged transfer membrane offers significantly increased binding, maximum "lot-to-lot" consistency, and excellent signal retention. The inherent charge on this nylon membrane along with its hydrophilic nature makes consistent repeatable results a reality for researchers.

After 12 rounds of reprobing, GVS Nylon has a lower background and higher signal.

Product Characteristics

Pore Size (µm)	Flow Time (s)	Volume/Vacuum (mL/ in Hg)	Flow Rate (mL/min/ cm ² @ 10 psi)	Bubble Point (psi)	Thickness (µm)
0.45	20-75	250/20	21.21-79.53	14-20	120-190

Ordering information

	Dimensions Packaging	82 mm 50/pk	82 mm 100/pk	200x200 mm 25/pk	220x220 mm 5/pk	300x300 mm 5/pk
Pore size	0.45 µm	1226559	1226561	1226573	1226568	1226569

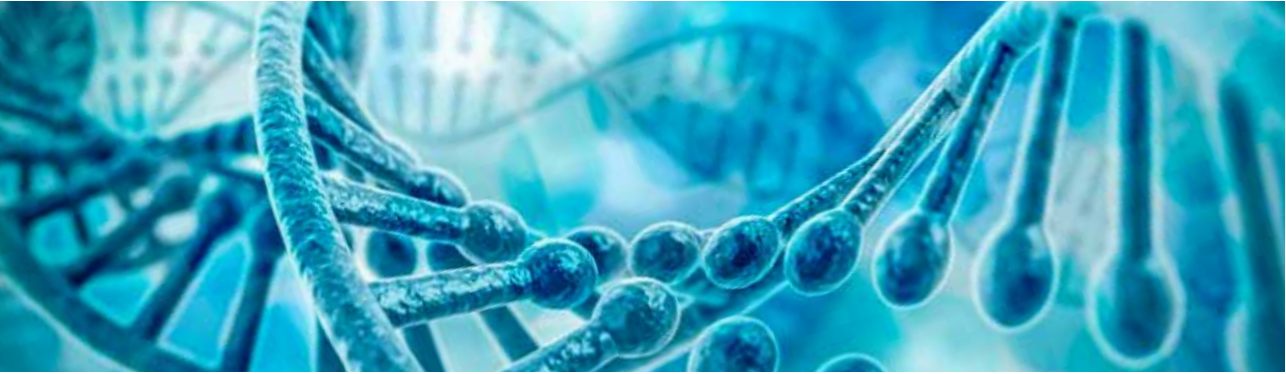
	Dimensions Packaging	300x300 mm 25/pk	150x3000 mm 1/pk	200x3000 mm 1/pk	300x3000 mm 1/pk
Pore size	0.45 µm	1226575	1226558	1226557	1226556



FLAME BEADS

FLAME BEADS Viral DNA/RNA

Extraction kit

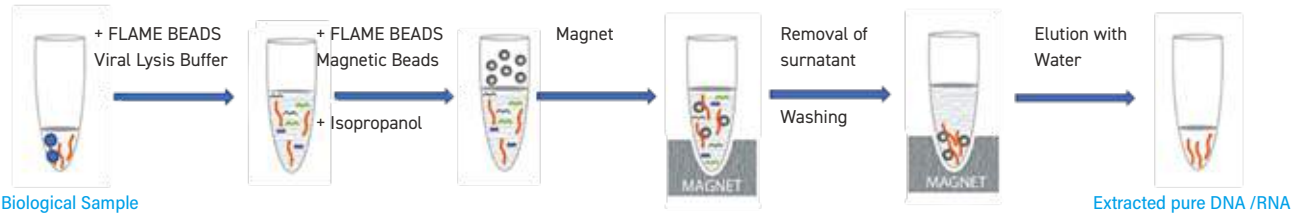


Overview

The FLAME BEADS Viral DNA/RNA Extraction Kit is designed for the rapid and efficient isolation of viral DNA and RNA from serum, swabs, plasma, saliva, and other body fluids. The magnetic beads technology enables the isolation of high-quality nucleic acids that are free of proteins, nucleases, and other impurities. The purified nucleic acids are ready for direct use in downstream applications such as Next-Gen sequencing, hybridization-based, and RT/qPCR detection.

Features

- Consistent and reproducible results
- High yield and high extract purity
- Temperature-stable components
- Minimal hands-on time
- Direct usage of extracted nucleic acid in downstream applications
- Compatible with the most common automated systems



GVS FLAME BEADS VIRAL DNA/RNA ORDER INFORMATION		
CODE	PRODUCT	SIZE
FLB0001	Flame Beads Viral RNA extraction kit - 8x96 test	768 test
FLB0002	Flame Beads Viral RNA extraction kit - 1x96 test	96 test

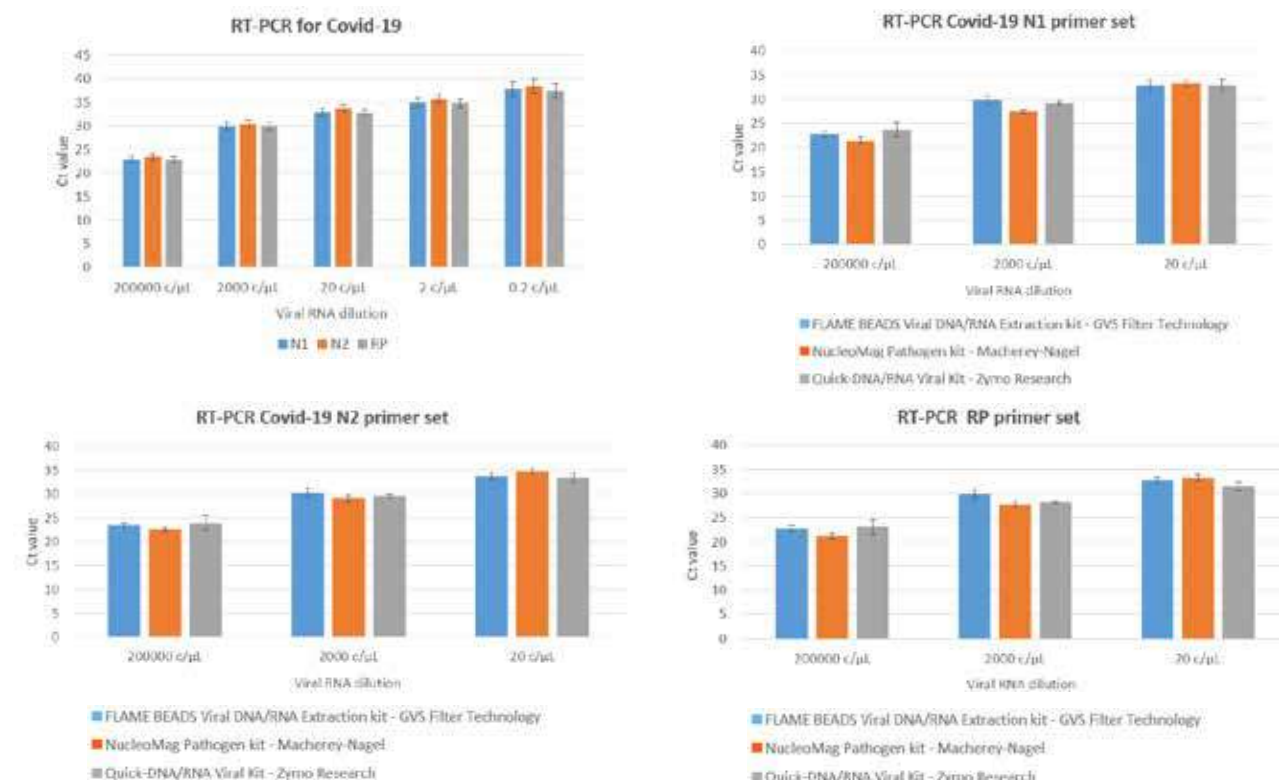
The FLAME BEADS Viral DNA/RNA Extraction kit is based on a proprietary technology DNA/RNA viruses are lysed quickly and efficiently using the lysis buffer, which is a highly concentrated solution of chaotropic salt. When combined with isopropanol, the FLAME BEADS Lysis buffer creates optimum conditions for nucleic acid binding to the BEADS magnetic beads. Contaminants such as salts, metabolites, and soluble macromolecular cellular components are removed in the wash process. The nucleic acids are eluted in RNase-DNase free water and are then ready for use in subsequent reactions, including Real-Time PCR, Sanger Sequencing, NGS, PCR, and other enzymatic reactions.

The detection limit for certain viruses depends on the sensitivity of the individual PCR or RT-PCR assays. The kit is validated for COVID-19 diagnosis by the laboratory of U.O. Microbiologia, Pievesestina, Cesena. Due to the great demand for reagents for RNA extraction in the period of COVID-19 emergency, GVS also offers a big size for the analysis of 8x96 samples. The FLAME BEADS Viral DNA/RNA Extraction Kit is compatible with the most common automated systems or usable for manual procedure.



Reagents & Chemicals

Detection of Synthetic SARS-CoV-2 virus control



Real-time RTPCR detection of SARS-CoV-2 N1, N2 and RNaseP genes using FLAME BEADS Viral DNA/RNA Extraction Kit and its competitors (manual procedure).

2019nCoV Positive Control (Norgen) from 200000 to 20 copies /μl was spiked in 150μL of Viral Transfer Medium (Viracell). Samples were processed using FLAME BEADS Viral DNA/RNA Extraction Kit, NucleoMag Pathogen Kit (Macherey-Nagel) and Quick-DNA/RNA Viral Kit (ZymoResearch) according to the manufacturer's protocol and Real-time RT-PCR was performed following the CDC protocol: 5μL of extracted samples were run using TaqPath 1 StepRT-Qpcr MasterMix, CG (ThermoScientific) and CDC Diagnostic panel primer sets (N1, N2 targeting two nucleocapsid genes and RNase P primers targeting human RNase P gene). Ct values averaged from three independent experiments. Error bars represent the standard deviation.

Validation for COVID-19 diagnostics: Automated RNA Extraction for COVID-19 Detection in Clinical Swab Samples

Sensitivity: 100%
Specificity: 100%

KIT	Reference RNA iSOLATION kit (U.O. Microbiologia, Pievesestina)		
	+	-	Total
FLAME BEADS Viral DNA/RNA Extraction Kit	+	45	0
	-	0	121
	Total	45	121

Concordance between test results obtained with FLAME BEADS Viral DNA/RNA Extraction kit and the Reference RNA Isolation kit for COVID-19 diagnostics.

FLAME BEADS Viral DNA/RNA Extraction kit has been validated for RNA isolation from SARS-CoV-19 clinical samples on 166 samples (45 positive samples and 121 negative samples) from nasopharyngeal swabs. RNA isolation was performed in parallel using FLAME BEADS Viral DNA/RNA Extraction kit and a reference kit. RNA was amplified with Allplex™ 2019-nCoV Assay (Seegene).

Compatible with automated procedure

393 ATECAN Freedom EVO
A Masme Biomed OMNIA
A Perkin Elmer Chemagic 360

Excellent reproducibility of results for a viral RNA-based internal positive control within runs (intra-assay) and between runs (inter-assay)

	Reproducibility		
	Mean CT	St. Dev	CV%
Intra-assay variability	25.3	0.76	3.02
	25.93	0.89	3.44

Reproducibility of test results obtained with FLAME BEADS Viral DNA/RNA Extraction kit for COVID-19 diagnostics.

Mean Ct, Standard deviation and Coefficient of Variation (CV%) of test results obtained on a viral RNA-based internal positive control on RNA extracted with FLAME BEADS Viral DNA/RNA Extraction kit from nasopharyngeal swabs clinical samples. RNA was amplified with Allplex™ 2019-nCoV Assay (Seegene).

A ThermoFisher Kingfisher
A Applied Biosystems MagMax
A Qiagen BioSprint
A Tecan DreamPrep NAP

Plasmid, Genomic DNA Spin Column

GVS series consists of spin columns and collection tubes. The nucleic acid adsorption membrane within the spin columns is made of specific silica-based materials, offering excellent flow rate, strong DNA binding capacity, and outstanding elution efficiency. It is suitable for PCR purification product recovery, DNA gel recovery, genomic DNA extraction from various sample types, including animal tissues, formalin-fixed tissues, bacteria, plants, soil, fungi, yeast, clinical samples (blood, urine, feces), etc.

Features

- Spin columns and silica membrane are made in-house, efficient cost control
- Professional R&D Center, proceed function validation for each lot
- Automatic production and inventory management ensure fast delivery
- Applied to gel recovery, PCR purification, genomic DNA extraction, plasmid preparation, etc.



Ordering information

Product Code	Description	Volume	Yield	Qty.
NAEB181802A	DNA Cleanup & Gel Purification Columns, Mini spin columns, capless spin columns, white fixing rings	2 mL, 800 μ L	~10 μ g	500 Pcs/PK
NAEB181803A	DNA Cleanup & Gel Purification Columns, Mini spin columns, capless spin columns, yellow fixing rings	2 mL, 800 μ L	~10 μ g	500 Pcs/PK
NAEB181804A	DNA Cleanup & Gel Purification Columns, Mini spin columns, capped spin columns, yellow fixing rings	2 mL, 800 μ L	~10 μ g	500 Pcs/PK
NAEB181805A	Genomic DNA Extraction Columns, capless spin columns, green fixing rings	2 mL, 800 μ L	~20 μ g	500 Pcs/PK
NAEB181806A	Genomic DNA Extraction Columns, capless spin columns, green fixing rings	2 mL, 800 μ L	~20 μ g	500 Pcs/PK
NAEB181809A	Plasmid Miniprep Columns, capless spin columns, blue fixing rings	2 mL, 800 μ L	~30 μ g	500 Pcs/PK
NAEB181810A	Plasmid Miniprep Columns, capped spin columns, blue fixing rings	2 mL, 800 μ L	~30 μ g	500 Pcs/PK
NAEB181813A	Plasmid Midiprep Columns	15 mL, 4 mL	~100 μ g	50 Pcs/PK
NAEB181815A	Plasmid Maxiprep Columns	50 mL, 22 mL	~500 μ g	20 Pcs/PK



RNA Purification



GVS series consists of spin columns and collection tubes. The nucleic acid adsorption membrane within the spin columns is made of specific silica-based materials, and it undergoes a special RNA enzyme treatment, providing exceptionally strong RNA binding capability and outstanding elution efficiency. This series is suitable for RNA extraction from various sample types, including animal tissues, plant tissues, soil, fresh large fungi, nucleated anticoagulated blood, coagulated blood samples, yeast cell suspensions, etc.

Ordering information

Product Code	Description	Volume	Yield	Qty.
NAEB181807A	RNA Extraction Columns, capless spin columns, green fixing rings	2 mL, 800 µL	~10 µg	500 Pcs/PK
NAEB181808A	RNA Extraction Columns, capped spin columns, green fixing rings	2 mL, 800 µL	~10 µg	500 Pcs/PK

High-Yield Purification



GVS series consists of spin columns and collection tubes. The nucleic acid adsorption membrane inside the spin columns is a silica-based material that has undergone high-loading process treatment, resulting in superior DNA/RNA binding capabilities compared to conventional silica membranes, typically 1.5-2.0 times better. It is suitable for DNA/RNA extraction from various sample types, including plasmids, animal tissues, plant tissues, soil, fungi, clinical samples (such as blood, urine, feces, bloodstains, etc.), and yeast cell suspensions.

Features

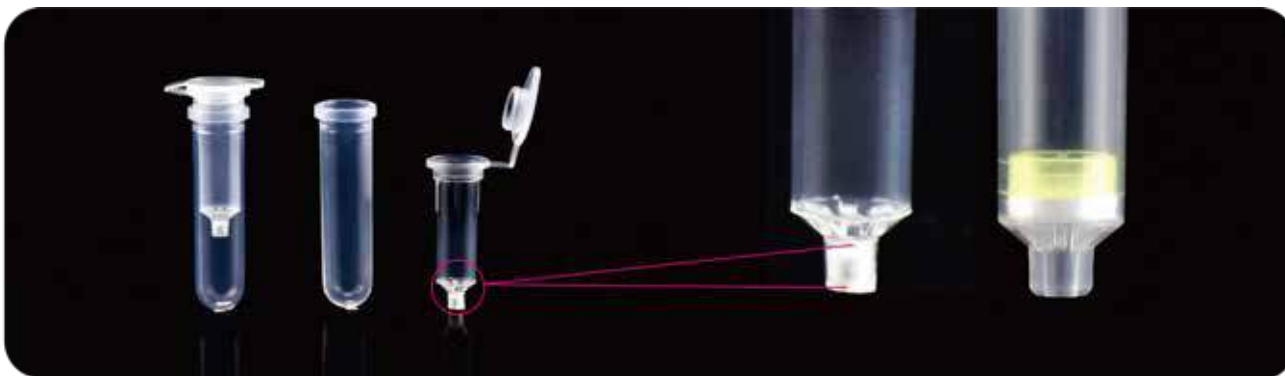
- A Strong binding capacity: the single-layer membrane loading is 1.5-2.0 times that of normal membranes
- A High purity: the OD260/OD280 ratio is typically 1.7-1.9

Ordering information

Product Code	Description	Volume	Yield	Qty.
NAEB181811A	Plasmid Miniprep Columns, Large-Scale, capless spin columns, White fixing rings	2 mL, 800 µL	55 µg	500 Pcs/PK
NAEB181812A	Plasmid Miniprep Columns, Large-Scale, capped spin columns, white fixing rings	2 mL, 800 µL	55 µg	500 Pcs/PK
NAEB181814A	High-yield Plasmid Maxiprep Columns	15 mL, 4 mL	200 µg	50 Pcs/PK
NAEB181816A	High-yield Plasmid Maxiprep Columns	50 mL, 22mL	1-1.5 mg	20 Pcs/PK

cfDNA, Methylation Purification

GVS series consists of spin columns and collection tubes. The nucleic acid adsorption membrane within the spin columns is made of specific silica-based materials, offering excellent flow rate, strong DNA binding capacity, and outstanding elution efficiency. Suitable for cfDNA and oligonucleotide purification, especially ideal for the purification of small fragment-labeled probes, capable of removing single-stranded DNA fragments below 10 bases, enzymes, salts, and non-incorporated radiolabeled biotin or digoxigenin-labeled nucleotides.



Ordering information

Product Code	Description	Volume	Yield	Qty.
NAEB181801A	Micro-Scale DNA Purification Columns	2 mL, 800 µL	~5 µg	500 Pcs/PK

High-Throughput Extraction Plates



The membrane in the nucleic acid extraction plate is made of specific silica-based material, which offers excellent flow rate, strong DNA binding capacity, and exceptional elution efficiency. It can be used for plasmid extraction, PCR purification, DNA gel recovery, genomic DNA extraction from various sample types, including animal tissues, formalin-fixed tissues, bacteria, plants, soil, clinical samples, fungi, yeast, and so on.

Features

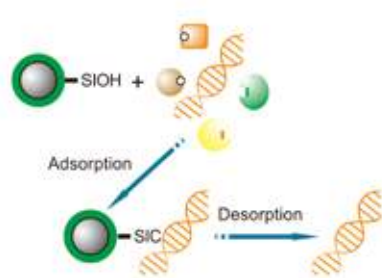
- A Complete specifications: 24 well (15mL/well), 96 well (1ml or 1.5mL/well) and 384 well (150µL/well) plates
- A Corresponding collection plates and vacuum & positive manifolds are available
- A Special mold design to avoid cross-contamination

Ordering information

Product Code	Description	Volume	Yield	Qty.
MIFPB96W02NA	96-well Extraction Plates, Full-Skirted	1.0 mL/well	~15 µg/well	4 Pcs/PK
MIFPB96W07NA	96-well Extraction Plates, Semi-Skirted, clear fixing ring	1.5 mL/well	~15 µg/well	4 Pcs/PK
MIFPB96W07GA	96-well Extraction Plates, Semi-Skirted, clear fixing ring	1.5 mL/well	~20 µg/well	4 Pcs/PK
MIFPB384W08A	384-well Extraction Plates	150µL/well	~500 ng/well	4 Pcs/PK



Magnetic Beads



Features

- A Wide range of applicable samples
- A High magnetic content, fast magnetic response, easy to isolate
- A Good monodispersity
- A Uniform particle size, small variance between batches, good repeatability

Ordering information

Product Code	Description	Qty.
NAEB181817A	Particle size 500 nm, concentration 50 mg/mL, binding capacity 10.5 µg/mg	200ml/Bottle
NAEB181819A	Particle size 500 nm, concentration 50 mg/mL, binding capacity 2.5 µg/mg	200ml/Bottle
NAEB181821A	Particle size 100 nm, concentration 50 mg/mL, binding capacity 12.5 µg/mg	200ml/Bottle
NAEB181823A	Particle size 100 nm, concentration 50 mg/mL, binding capacity 2.0 µg/mg	200ml/Bottle

Proteinase K



The broad-spectrum serine protease with a relative molecular weight of approximately 29.3 kDa cleaves the carboxy-terminal peptide bonds of aliphatic and aromatic amino acids. Proteinase K is widely applied to enzymatic glycosylated hemoglobin reagents and glycosylated albumin reagents research, also a key reagent for nucleic acid extraction which enzymatically hydrolyze histones bound to nucleic acids to free DNA for subsequent purification.

Ordering information

Product Code	Description	Qty.
NAEB181825A	Proteinase K powder	1 g/Bottle
NAEB181827A	Proteinase K powder	100 g/Bottle
NAEB181826A	Proteinase K powder	50 g/Bottle



Prestained Protein Ladder



The protein ladder is designed for monitoring protein separation during SDS-PAGE, verification of Western blot transfer (PVDF, Nylon or Nitrocellulose membranes) and for the approximate sizing of proteins. Supplied as a ready-to use formulation in gel loading buffer, the ladder requires no heating, dilution or addition of reducing agents. Lot-to-lot variation of apparent molecular weight of prestained proteins is less than 3%. GVS' s protein ladder is available in various colors of purple, yellow, red, orange, green and blue.

Storage Buffer

20mM Tris-H₃PO₄(pH7.5), 2mM EDTA, 1.5% (W/V) SDS, 15% (W/V) Glycerol, 4M Urea, 3mM DTT, 0.1% (V/V) Proclin300

Storage: Stable at -20°C for 36 months ; 4°C for 3 months; 25°C for 4 weeks

Key information

1. Prestained proteins can have different mobilities in various SDS-PAGE-buffer systems. However, they are suitable for approximate molecular weight determination when calibrated against unstained standards in the same system. See the table provided for migration patterns in different electrophoresis conditions.
2. In low-percentage gels (< 10 %), the low-molecular weight proteins in the ladder may migrate with the dye front.
3. Prestained Protein Ladder can be used in Western Blotting with all common membranes: PVDF, Nylon and Nitrocellulose.
4. Longer transfer times or higher transfer voltages may be required for Western blotting of large (>100 kDa) proteins.

Preparation

Step 1

Thaw the ladder at room temperature for a few minutes to dissolve precipitated solids. Do not boil !!

Step 2

Mix gently, but thoroughly, to ensure the solution is homogeneous.

Step 3

Load the following volumes of the ladder on an SDS-polyacrylamide gel:
- 5 µL per well for mini gel,
- 10 µL per well for large gel.

Step 5

The loading volumes listed above are recommended for gels with a thickness of 0.75-1.0 mm. The loading volume should be doubled for 1.5 mm thick gels

Step 4

Use the same volumes for Western blotting.

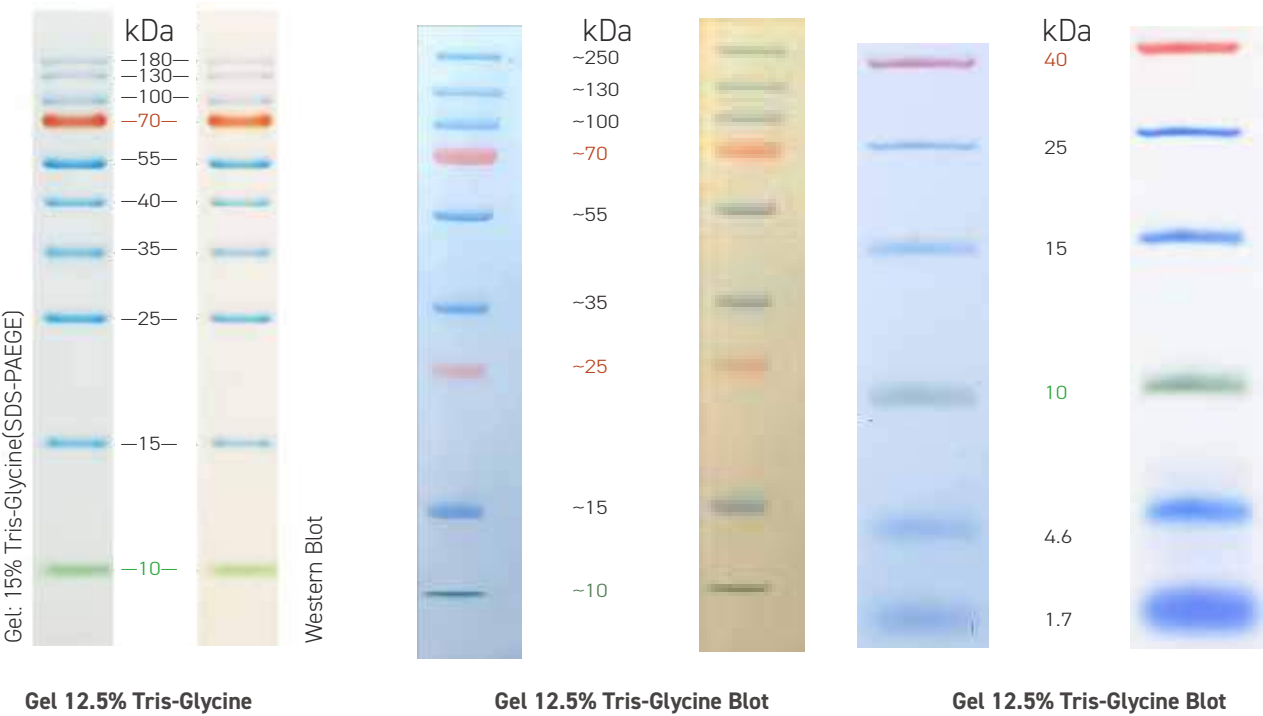


Features

- A Broad range
- A Precise indication
- A Clear band trace
- A Colorful prestained colors
- A Customization
- A Ready to use

Migration patterns of Prestained Protein Ladder:

The apparent molecular weight of each protein (kDa) has been determined by calibration against an unstained protein ladder in each electrophoresis



Ordering information

Product Code	Description	Qty.
PPLB180K101A	prestained protein ladder, 10-180kDa	250 µL
PPLB180K102A	prestained protein ladder, 10-180kDa	5x250 µL
PPLB250K201A	prestained protein ladder, 10-250kDa	250 µL
PPLB250K202A	prestained protein ladder, 10-250kDa	5x250 µL
PPLB040K301A	prestained protein ladder, 1.7-40kDa	250 µL



Dry Blend Buffered Packs

Dry Blend Buffered Packs have stable quality and good batch-to-batch variation to meet the large quantities needs of laboratories.

Ordering information

Product Code	Description	Qty
BUFDYB1919A	PBS: 10mM Phosphate, 137 mM NaCl, 2.7 mM KCl, pH 7.4	50 Pcs/PK
BUFDYB1920A	PBS buffer with Tween-20: 10 Mm Phosphate, 137 mM NaCl, 2.7mM KCl 0.05% Tween-20, pH 7.4	50 Pcs/PK
BUFDYB1921A	DPBS Buffer: 10 mM Phosphate, 138mM NaCl, 2.67 mM KCl, pH 7.4	50 Pcs/PK
BUFDYB1922A	TBS Buffer: 50mM Tris-HCl, 138 mM NaCl, 2.7 mM KCl, pH 8.0	50 Pcs/PK
BUFDYB1924A	Tris-Glycine Buffer: 25 mM Tris, 192 mM Glycine	50 Pcs/PK
BUFDYB1925A	Tris-Glycine-SDS Buffer: 25 mM Tris, 192 mM Glycine, 0.1% SDS	50 Pcs/PK
BUFDYB1927A	Tris-MOPS-SDS Buffer: 50 mM MOPS, 50 mM Tris, 0.1% SDS, 1 mM EDTA	50 Pcs/PK
BUFDYB1928A	Tris-MES-SDS Buffer: 50 mM MES, 50 mM Tris, 0.1% SDS, 1 mM EDTA	50 Pcs/PK
BUFDYB1929A	Western Blot Transfer Buffer: 48 mM Tris, 39 mM Glycine, 1.2 mM SDS	50 Pcs/PK
BUFDYB1931A	SSC Buffer: 300 mM NaCl, 30 mM Trisodium citrate, pH 7.0	50 Pcs/PK
BUFDYB1932A	TAE Buffer: 40 mM Tris-Acetate, 1 mM EDTA, pH 8.0	50 Pcs/PK
BUFDYB1923A	TBS Tween-20 Buffer, 1x, pH7.5, 1L/Pouch	50 Pcs/PK
BUFDYB1926A	TBE Buffer, 1X, pH8.3, 0.5L/Pouch	50 Pcs/PK
BUFDYB1930A	Tris-EDTA Buffer, 10X, pH8.3	50 Pcs/PK

Biological Buffers

The biological buffers are applied to cell culture, immunohistochemistry (IHC), Western Blot, enzyme-linked immunosorbent assay (ELISA), in situ hybridization, immunodetection washing solutions, antibody dilutions, and molecular cloning fields.

Features

A Sterilized by 0.1 µm filtration; GMP standard, traceable throughout the process

Ordering information

Product Code	Description	Qty.
BUFBIOB1933A	PBS Buffer, pH 7.4, 500 mL, 1x	10 Bottle/Box
BUFBIOB1936A	PBS Tween-20 Buffer, 500 mL, 1x	10 Bottle/Box
BUFBIOB1938A	DPBS Buffer, no calcium, no magnesium, 500 mL, 1x	10 Bottle/Box
BUFBIOB1941A	TBS Buffer, 500 mL, 1x	10 Bottle/Box
BUFBIOB1944A	TBS Tween-20 Buffer, 500 mL, 1x	10 Bottle/Box
BUFBIOB1949A	Tris-Glycine Buffer, 500 mL, 1x	10 Bottle/Box
BUFBIOB1951A	Tris-EDTA Buffer, 500 mL, 1x	10 Bottle/Box
BUFBIOB1953A	Tris-Glycine SDS Buffer, 500 mL, 1x	10 Bottle/Box
BUFBIOB1955A	Western Transfer Buffer, 500 mL, 1x	10 Bottle/Box
BUFBIOB1939A	Hanks Buffer	10 Bottle/Box
BUFBIOB1940A	1M HEPES Buffer (pH 7.3) 1x	10 Bottle/Box
BUFBIOB1947A	SSC Buffer, 1x	10 Bottle/Box
BUFBIOB1948A	TAE Buffer, 1x	10 Bottle/Box
BUFBIOB1957A	TRIS-MOPS SDS Buffer, 1X	10 Bottle/Box
BUFBIOB1958A	TRIS-MES-SDS Buffer, 1X	10 Bottle/Box
BUFBIOB1959A	Acetic acid buffer, 1X	10 Bottle/Box
BUFBIOB1960A	10% SDS buffer	10 Bottle/Box
BUFBIOB1961A	SM buffer, 2x	10 Bottle/Box
BUFBIOB1962A	Lysozyme buffer, 1x	10 Bottle/Box
BUFBIOB1963A	Sodium citrate buffer	10 Bottle/Box



APPLICATION GUIDELINE



Food Safety



When it comes to quality assurance and raw material control, knowledge of ingredients is absolutely essential. Some of our high-quality filter grades have proven to be effective for analysis and strict monitoring work. Here, you will also find filter grades whose purity means they are suitable for process filtering foodstuffs.

- [A](#)Fruit juice and nectar
- [A](#)Wine and sparkling wine
- [A](#)Beer, malt and beer-based beverages
- [A](#)Edible and technical oils
- [A](#)Milk and dairy products
- [A](#)Meat and meat products

Agriculture



Detecting and determining nutrients and trace elements is essential for optimizing crop and livestock growth. Our filter papers' average ash content has been adjusted to meet these high standards in chemical analysis.

- [A](#)Soil and fertiliser
- [A](#)Animal feed
- [A](#)Seed

Chemicals



Every chemical reagent and pharmaceutical substance is only as good as the quality of the product. Maximum quality standards are among the key success factors for any company operating in the chemical and pharmaceutical sector. GVS supplies the purest quantitative filter papers.

- [A](#)Quality control
- [A](#)Detergents
- [A](#)Oil refineries
- [A](#)Cement analysis

Environmental analysis



An optimum filter material simplifies and supports contamination-free sampling of suspended particles in water and particles in emissions or chemicals. Thanks to their consistent performance, our high-purity filter papers are ideal for situations that call for unambiguous analytical results.

- [A](#)Air pollution
- [A](#)Emission control
- [A](#)Water
- [A](#)Waste products



Food safety

Fruit juice and nectar



Target application

- Analysis of ingredients, contaminants purity for food, feed and Utensils.
- Particle separation and clarification before optical measurements
- Sample preparation before sensitive analyses such as HPLC

Process filtration

- The pure raw materials – linters and cellulose – are used in the production of these filter papers, which allow their use with food and beverages during production.

Process	Technique	Type of Filter	Filter grade
Particle separation	Filtration (funnel/Büchner)	Filter paper for qualitative analysis, low ash according to § 64 LFBG	DXF04
			DME01 DME07 DXS05
HPLC	Clarification of aqueous samples	0.2 µm cellulose acetate syringe filter	Abluo 0,2
		0.2 µm PES syringe filter	CA 0,2
		0.2 µm cellulose acetate membranes	PES 0,22
		0.2 µm PES membranes	
	Clarification of organic samples	0.2 µm nylon syringe filter	Abluo 0,2
		0.2 µm nylon membranes	NY 0,2
Spectrophotometry	Filtration of mobile phase	0.45 µm nylon membranes	NY 0,45
		0.45 µm cellulose acetate syringe filter	Abluo 0,45
		Cellulose acetate membrane	CA 0,45
Preparing fruit juice samples for photometric measurements (e.g. phosphate)	Filtration (funnel/Büchner)	Quantitative filter paper	DSL45
Protection of apparatus and surfaces	Absorption	Absorbent paper with polyethylene layer	AB1505



Food safety

Wine and sparkling wine



Target application

- Analysis of ingredients, contaminants and microbiological purity for food, feed and utensils.
- Particle separation and clarification before optical measurements

Process filtration

Depending on the type of contamination, various retention rates are available for wine clarification.

Process	Technique	Type of Filter	Filter grade
Analysis of acids (sep. of malic acid)	Paper chromatography (malolactic fermentation)	Chromatography paper	CH3001 CH3003
Particle separation	Filtration (funnel)	Filter paper for qualitative analysis	DXF04 DME01 DME07 DXS05 DNS06
	Removal of turbidity	Low ash filter paper	DNS06
Removal of CO ₂ and turbidities from wine and sparkling wine	Filtration	Filter paper with Kieselguhr	DMS60
Gravimetric analysis	Measurement of ashes	Filter paper for quantitative analysis	DSL44
Determining particle load	Separation of particles in suspensions	0.8 µm cellulose nitrate membrane	CA 0,8
HPLC	Clarification of aqueous samples	0.45 µm cellulose acetate or PES syringe filter	Abluo 0,45
		0.45 µm cellulose acetate or PES membranes	CA 0,45
Colour characteristics	Clarification of grape must /wine	0.45 µm cellulose acetate syringe filter	CA 0,45
Spectrophotometry	Protection of the apparatus	0.45 µm cellulose acetate membranes	CA 0,45
Microbiological analysis	Detection of microorganisms	White, sterile cellulose nitrate membranes or mixed cellulose esters with grid, 0.2 and 0.45 µm	NC 0,2 or NC 0,45

Production	Type of Filter	Filter grade
Clarification of sweetened, viscous wines and cards	Medium-fast, wet strength	SP3001
	Creped, fast, wet strength	DXF13
Filtration of unsweetened wines	Fast, wet strength	SP3001



Food safety

Beer, malt and beer-based beverages for food, feed and utensils.



Target application

- A Analysis of ingredients, contaminants and microbiological purity and utensils
- A Ideal for sample preparation and clarification. Useful for removing CO₂ and turbidities
- A Measurement of nitrogen compounds, proteins and trace elements

Process ¹	Technique	Type of Filter	Filter grade
Removal of CO ₂ and turbidities from beer, wine and juices			DME07 DNS06
Determination of solids in wort (Labor Veritas method)			DMEFC
Filtration of lees			DME07 DMEFC
Determination of the coagulateable proteins			DME07
Determination of the grade of fermentation			DME07
Sample preparation	Filtration, funnel	Filter paper for qualitative analysis	DME01
Determination of solids and turbidity (Feld method)			DSL45
Determination of nitrogen-compounds by phosphor molybdenum precipitation			DFA41
Determination of carbohydrates by hydrolysis			DFA41
Analysis of ash content in foodstuffs			DSL45
Determination of proteins in wort and beer via MgSO ₄ precipitation			DSL45 DFA41
Drinking water: Determination of chemical elements, radioactive trace elements	Filtration, funnel	Filter paper for quantitative analysis	DSL44
Spectrophotometry	Colour of the malt	White cellulose acetate membranes with grid, 0.45 µm	CA 0,45
Microbiological analyses	Microorganism count	Black, sterile cellulose nitrate membranes with grid, 0.45 µm	NC 0,45

1. In the instructions in 'Analytical methods in breweries - Wort, Beer, beer-based Beverages', published by the Middle European Brewery Analysis Commission (MEBAK).



Food safety

Edible oil and fat



Target application

A Analysis of ingredients, contaminants and microbiological purity for food, feed and utensils.

Process filtration

A The papers listed are suitable for use in filter presses

A Clarification and purification of edible oils

A Regeneration of lubricating oils, transformer and turbine oils

Process	Technique	Type of Filter	Filter grade
Particle separation	Clarification of essential oils	Filter paper for extra-fast filtration	SP3001
Analysis in line with § 64 LFBG	Filtration (funnel)	Filter paper for qualitative analysis	DXF04
Determination of the unsaponifiable fraction in fats	Filtration (funnel)	Filter paper for qualitative analysis	DME07 DME01
Analysis of oil/fats	Fat extracting equipment	Filter paper with very high wet strength	DME52
		Filter paper for quantitative analysis	DME43
Quantifying particles using gravimetry	Separation of solids in oil with petrol ether	Absorptive, dense paper	DNS06
HPLC	Clarification of organic samples	0.2 µm nylon syringe filter 0.2 µm nylon membranes	Ablo 0,2 NY 0,2
	Filtration of mobile phase	0.45 µm nylon membranes	NY 0,45
Protection of apparatus and surfaces	Absorption	Absorbent paper with polyethylene layer	AB1505

Production	Type of Filter	Filter grade
Clarification and Purification	Fast, creped, for large particles	DXF13
Removal of particles from used oil in fryers	Very fast, wet strength	DXF13

Note: The recommended grades for edible oils can even be used for technical oils with similar viscosity and particle properties.



Food safety

Milk and milk products



Target application

- A Analysis of ingredients, contaminants and inspection of microbiological purity for food, feed and utensils
- A Gravimetric analysis and detection of metal particles
- A Determination of whiteness

Process	Technique	Type of Filter	Filter grade
Chemical Analysis	Filtration (funnel)	Filter paper for qualitative analysis	DXF04 DME01 DME07
Gravimetric analysis		Filter paper for qualitative analysis	DXS42 DFA41 DSL45
Measurement of solids in suspensions	Filtration, weighing	Glass microfibre filter	DMEFC
HPLC	Clarification of organic samples	0.45 µm nylon syringe filter	Abluo 0,45
Microbiological analysis	Microorganism count	White, sterile cellulose nitrate membranes with grid, 0.2 and 0.45 µm	NC 0,2 or 0,45
Protection of apparatus and surfaces	Absorption	Absorbent paper with polyethylene layer	AB1505

Food safety

Meat and meat products



Target application

- A Analysis of ingredients, contaminants and microbiological purity for food, feed and utensils
- A Gravimetric analyses
- A Measurement of fats

Process	Technique	Type of Filter	Filter grade
Gravimetry	Filtration (funnel)	Filter paper for quantitative analysis	DFA41 DSL45 DME43 DSL44
Surface protection	Absorption	Absorbent paper with polyethylene layer	AB1505



Agriculture

Soil and fertilizer

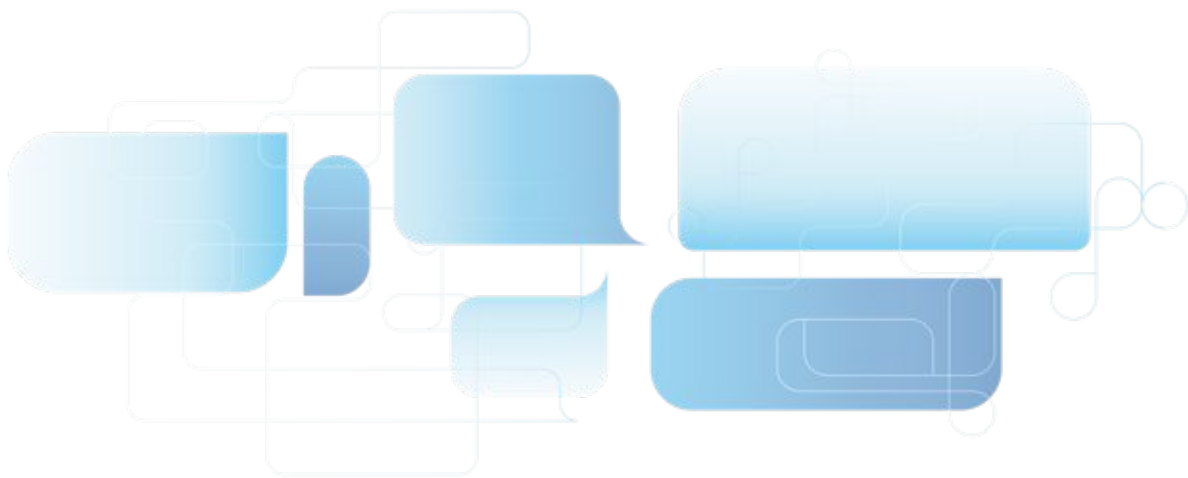


The determination of trace elements and nutrients in soil is important to optimize agricultural crops

Target application

- A Analysis of nutrients, mineral nutrients, contaminants and microbiological purity
- A Measurement of nitrogen, potassium and phosphate
- A Ideal for detecting minerals and heavy metals

Process	Technique	Type of Filter	Filter grade
Measurement of nitrogen	Filtration (funnel)	Filter paper for quantitative analyses, ash-free	DME43
Measurement of trace elements		Filter paper for quantitative analyses, ash-free	DFA41 DSL45 DME43 DSL44 DMS40 DXS42
Free amino acids and total amino acids		Filter paper for quantitative analyses, ash-free	DFA41 DME43
Measurement of soluble sulphates	Water extraction	Filter paper for quantitative analyses, ash-free	DSL44
Determination of K and P	Egnér, Riehm and Lederle	Filter paper, low phosphates	DFA41 DSL45 DME43 DSL44 DMS40 DXS42
Measurement of solids in suspension	Filtration difference in weight	Glass microfibre filter	DMEFC
Measurement of nitrates and phosphates by HPLC	Sample preparation	Nylon, 0.45 µm, syringe filter	Abluo 0,45



Agriculture

Animal feed



Target application

- Analysis of nutrients, mineral nutrients, contaminants and microbiological purity
- Ideal for the detection of trace elements like Mg, Mn, Zn, Co, Cu, Mo, and B
- Measurement of fats

Process	Technique	Type of Filter	Filter grade
Gravimetry	Filtration (funnel)	Filter paper for quantitative analysis	DFA41 DSL45 DME43 DSL44 DMS40 DXS42
Measurement of Calcium		Filter paper for quantitative analysis	DFA41
HPLC	Clarification of organic samples	Syringe filter with nylon membranes or regenerated cellulose, 0.45 µm Syringe filter PES 0.2 µm	Abluo 0,2 or 0,45
	Filtration of mobile phase	Nylon membrane, 0.45 µm	NY 0,45
Microbiological analysis	Detection of microorganisms	White cellulose nitrate membranes, 0.45 µm, gridded	NC 0,45
Separation of solids from suspensions	Filtration, weight determination	Glass microfibre filter	DMEFC
Surface protection	Absorption	Absorbent paper with polyethylene layer	AB1505



Agriculture

Germination testing



Target application:

The high purity of GVS germination test papers means they are very well suited for testing the germination of medium large and coated seeds (sugar beet, fodder beet, grain, sunflower, rapeseed, mustard), seeds with small, white rootlets, grain, very sensitive seeds, small seeds (flowers, grasses).

- A All papers are made of pure cellulose and are free from mould, bacteria and any toxic substances which might interfere with the growth of seeds
- A The highly absorbent papers store sufficient moisture for the whole duration of the test
- A Their low density means the papers have a high degree of absorbency, but the roots are not able to grow into the paper
- A The conductivity of the papers is lower than 40 mS/m, and the pH is between 6.0 and 7.5
- A We offer a broad range of papers for the various germination methods TP, BP and PP

Process	Technique	Type of Filter	Filter grade
Dust control	Particle collection by dust meter	Glass microfibre filter with binder	DAM07
Prevention of penetration by roots, protection of surfaces	Absorption	Absorbent paper with polyethylene layer on one side	AB1505



Environmental analysis

Air pollution



Target application

- A Ambient air monitoring
- A Determination of suspended particles (SPM: suspended particulate matter) and total suspended particles (TSP: total suspended particulate matter)
- A Detection of PM₁₀ and lead (Pb)
- A Monitoring the presence of pollutants in the air at different measuring points

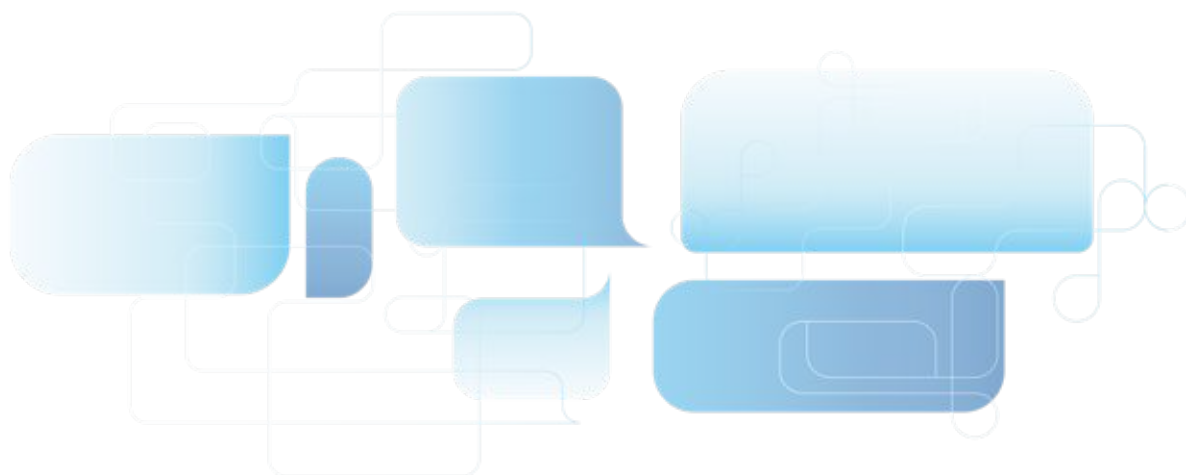
Process	Apparatus	Technique	Type of Filter	Filter grade
Sampling of total suspended particulate matter TSP ($\phi > 30\mu\text{m}$) ¹⁾	High volume capturer Low volume capturer Cascade impactor			DFAFA
Sampling and analysis of PM ₁₀ ($\phi > 10\mu\text{m}$) ¹⁾²⁾³⁾	High volume capturer Low volume capturer Cascade impactor	Gravimetry	Quartz microfibre filter, in line with US EPA and DIN EN ISO 23210	D0QF2
Sampling and analysis of PM _{2.5} ($\phi > 2.5\mu\text{m}$) ¹⁾	High volume capturer		Quartz microfibre filter, in line with US EPA and DIN EN ISO 23210 PTFE	D0QF2 or PM _{2.5} PTFE
Sampling and analysis of lead ⁴⁾	High volume capturer Low volume capturer Cascade impactor	Atomic absorption spectroscopy	Quartz microfibre filter, in line with US EPA and DIN EN ISO 23210	D0QF2

1) Reference methods in '40CFR50 Appx B, J, L, and G' in the 'Federal Register of the US EPA'

2) Air quality in accordance with EN12341

3) Directive 2008/50/EC, in European standard EN12341.

4) Ambient air quality in accordance with EN 14902:2005



Environmental analysis

Emission Control



Target application

- A Monitoring of anthropogenic atmospheric emissions (oil refineries, power stations, burning of liquid and solid fuels, cement factories, mining industries, incinerators, iron foundries, grinders, asphalt plants, glassmakers, ceramic factories) and at stationary sources
- A Measurement of dust release in workplace and production processes, exhaust fumes from private houses, and newly developed engines (for cars and other vehicles)

Process	Apparatus	Technique	Type of Filter	Filter grade
Measurement of nitrogen (gravimetry) ^{1) 2) 3) 4)}	Isokinetic probe with rear filter-holder (up to 500°C)	Filtration, weighing	Glass microfibre filter Glass fibre thimbles	DFAFA
	Isokinetic probe with front filter-holder (up to 900°C)		Quartz microfibre filter Glass fibre thimbles	DOQF2
Measurement of inorganic lead ⁵⁾	Isokinetic probe with rear filter-holder (up to 500°C)	Atom absorption spectroscopy	Glass microfibre filter Glass fibre thimbles	DFAFA
Measurement of metals ⁶⁾	Isokinetic probe with rear filter-holder (up to 500°C)		Glass microfibre filter Glass fibre thimbles	DFAFA
	Isokinetic probe with front filter-holder (up to 900°C)		Quartz microfibre filter Glass fibre thimbles	DOQF2
Deposition of radioactive aerosols	Filtering instrument	Filtration, Scintillation	Glass microfibre filter, retention capability < 1µm	DFAAH
Monitoring the combustion air	Filtering instrument	Filtration, weighing	Glass microfibre filter	DAM07 DAM30
Emission test/engine development ⁷⁾	Automatic air filter units, air analysers with filter rolls	Filtration + optical evaluation	Medium-fast filter paper, small particle retention, white	DME07

1) EPA 5

2) EPA 17

3) UNE ISO 9096

4) EN 13284

5) EPA 12

6) EPA 29

7) Stationary emissions sources. Optical on-site analysis



Environmental analysis

water



Target application

- A Gravimetric analyses of organic and inorganic contaminants in water and waste water
- A Monitoring microbiological quality of drinking water
- A Determination of total dry residue
- A Determination of dissolved organic carbon (DOC) and total organic carbon (TOC)

Process	Technique	Type of Filter	Filter grade
Sample preparation	Clarification	Qualitative filter paper	DME01
Total dry residue, ash residue ^{2) 3)}	Filtration, weighing	Glass microfibre	DFAAH
		Qualitative filter paper	DSL45
Measurement of solids in suspensions after drying at 105°C ^{1) 2) 15)}	Filtration, weighing	Glass microfibre	DMEFC DFAAH
Measurement of the total remainder after drying at 180°C ^{5) 6)}			DMEFC DFAAH
Solids and volatiles after incineration at 550°C ⁷⁾			DFAFA
Suspended particles ⁸⁾			DMEFC DFAAH
Colouration ²⁾	Filtration		DFAFA DFAAH
Radioactivity			
Measurement of metals			
Measurement of total and dissolved organic carbon ^{9) 10) 11)}	Filtration, combustion/infrared	0.45 µm cellulose acetate/mixed cellulose ester	CA 0,45 or NC 0,45
	Filtration, oxidation	Glass microfibre	DMEFC DFAAH
Measurement of dissolved iron ²⁾	Filtration	0.45 µm cellulose acetate	CA 0,45
Measurement of metals (pre-filtration) ¹²⁾	Filtration, ASS	0.45 µm cellulose acetate	CA 0,45
Measurement of metals	Buchner funnel	Quantitative filter paper	DSL45 DSL44
Measurement of radioactivity ¹³⁾	Precipitation (Ra)	0.45 µm cellulose acetate	CA 0,45
Measurement of non-metallic inorganic compounds ¹⁴⁾	Filtration	Quantitative filter paper	DSL45 DME43 DSL44
Microbiological analyses of drinking water	Filtration	Sterile cellulose nitrate membranes, 0.2 µm or 0.45 µm, gridded	NC 0,2 or 0,45
Microbiological analyses of drinking water, legionella		Sterile cellulose nitrate 0.2/0.45 µm, black, gridded	PCTE 0,45 or 0,2

1) DIN EN 872

2) DIN 38409-1

3) DIN 38409-2 D

4) UNE 77031:

5) 2540 C Standard Methods

6) 2540 E Standard Methods

7) 2530 B Standard Methods

8) UNE EN 1484

9) 5310 B Standard Methods

10) 5310 D Standard Methods

11) 3030 B Standard Methods

12) UNE 77037

13) Part 4000 Standard Methods

14) DIN 38409 H2-2

15) 2540 C Standard Methods



Environmental analysis

Waste products



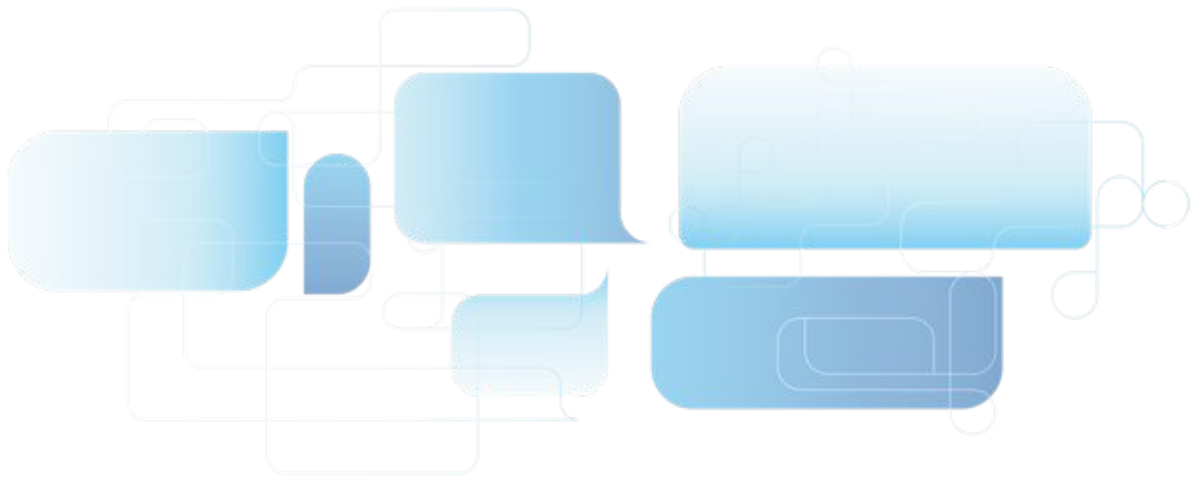
Target application

- Analysis of waste products in the disposal of industrial waste and laboratory waste
- Particle separation and clarification before further measurements
- Sample preparation and washing out of samples for characterisation of toxic substances

Process	Technique	Type of Filter	Filter grade
Characterisation of dangerous substances	Filtration	PES/cellulose acetate/ cellulose nitrate membranes 0.2 µm	PES 0,2 NC 0,2 CA 0,2
Characterisation of toxic substances ¹⁾	Pressure filtration	Glass microfibre filter	DMEFC
Analysis of contaminated soil ²⁾	Extraction by water	PES/cellulose acetate/ cellulose nitrate membranes 0.45 µm	PES 0,2 NC 0,2 CA 0,2
Filtration of biosolids/sludge from wastewater	Continuous filtration by filterbelt	Fast, very high wet strength	DFA54
Protection of apparatus and surfaces	Absorption	Absorbent paper with polyethylene layer	AB1505

1) EPA 1311 TCLP

2) DIN 38414-4



Environmental analysis

Quality control



Target application

- A Clarification before quantitative analysis
- A Sample preparation before HPLC
- A Microbiological investigations
- A Extraction before an analysis

Process	Technique	Type of Filter	Filter grade
Gravimetry	Filtration (funnel)	Filter paper for quantitative analyses	DFA41 DSL45 DME43 DSL44 DMS40 DXS42
		Hardened filter paper for quantitative analyses	DFA41 DMS40 DXS42
Analysis of chemicals	Paper chromatography	Chromatography papers	CH3002 CH3003
Clarification of samples	Pre-filter for membranes	Glass microfibre filter	DAM07
Microbiological analysis	Detection of microorganisms	Cellulose nitrate membranes with grid, 0.45 and 0.2 µm, sterile Mixed cellulose ester membranes with grid, 0.45 µm and 0.2 µm, sterile	NC 0,2 or 0,45
	Clarification of biological fluids	Sterile syringe filter with cellulose acetate 0.45 µm and 0.2 µm Sterile syringe filter with PES 0.45 µm and 0.2 µm	Abluo 0,2 or 0,45
HPLC	Preparation of organic samples	Nylon syringe filter, 0.2 µm	Abluo 0,2
	Filtration of mobile phase	Nylon membrane, 0.2 µm	NY 0,2
Surface protection	Absorption	Absorbent paper with polyethylene layer	AB1505



Chemicals

Cleaning materials



Target application

- A Clarification before quantitative analysis
- A Gravimetric measurements
- A Sample preparations before HPLC

Process	Technique	Type of Filter	Filter grade
Gravimetry	Filtration (funnel)	Filter paper for quantitative analysis	DFA41 DSL45 DME43 DSL44 DMS40 DXS42
Determination of tenside content	Filtration (funnel)	Glass microfibre filter	DFAFA
HPLC	Clarification of samples	Syringe filter with Nylon, 0.45 µm	Abluo 0,2
Separation of solids in suspensions	Clarification of samples	Syringe filter, with PES, 0.2 µm	Abluo 0,2
		Syringe filter, with Nylon, 0.2 µm	Abluo 0,2
	Filtration of mobile phase	Nylon membranes, 0.2 µm	NY 0,2
Surface protection	Filtration (funnel)	Glass microfibre filter	DMEFC
	Absorption	Absorbent paper with polyethylene layer	AB1505



Chemicals

Cement analysis



Target application

- Ensuring product quality
- Determination of water retention capacity
- Determination of grind level

Process (Technique)	Type of Filter	Size Ø (mm)	Filter grade	Weight [g/m²]	Thickness (mm)	
Water retention capacity (DIN EN 413-2)	Filter paper	100	C3003	192	0.36	
Building lime (DIN EN 459-2)	Filter card	190 x 190 sheets	F3006	730	1.3	
Mortar with binders containing minerals	Filter card	190 x 190 sheets	F3006	730	1.3	
Blaine test (grinding fineness of cement (DIN EN 196-6))	Filter paper	fast	12.5	DSL45	79	0.19
			12.7			
			40.5			
		medium-fast	12.7	DFA41	86	0.18
			40.5			
		fast	41.5	DSL45	79	0.19



Chemicals

Oil refinery



Target application

A Clarification before quantitative analysis

A Gravimetric measurements

A Analysis of soot particles

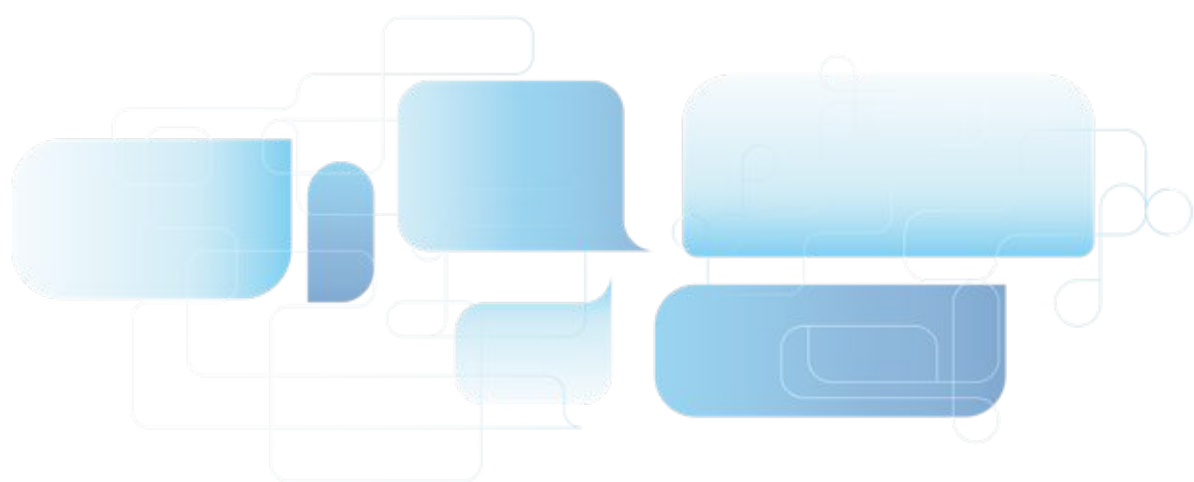
Process filtration

Removal of particles from used oil

Process	Technique	Type of Filter	Filter grade
Gravimetry	Filtration (funnel)	Filter paper for quantitative analysis	DFA41 DSL45 DME43 DSL44 DMS40 DXS42
		Hardened filter papers for quantitative analysis	DFA41 DMS40 DXS42
Solid-liquid separation		Filter paper qualitative analysis, low ash	DMS03
Determination of solids in suspensions	Filtration, weighing	Glass microfibre filter	DMEFC
Surface protection	Absorption of liquids	Absorbent paper with Polyethylene coating	AB1505
Determination of particles with diameter $\geq 0.8 \mu\text{m}$	Filtration, weighing	White, smooth cellulose nitrate membranes $0.8 \mu\text{m}$	NC 0,8
Determination of particles with diameter $\geq 0.45 \mu\text{m}$		White, smooth cellulose nitrate membranes $0.45 \mu\text{m}$	NC 0,45
Monitoring of soot in oil (OCM)	Dispersancy of the oil on absorptive paper	Absorptive, dense filter paper	DNS06

Production	Type of Filter	Filter grade
Clarification and purification	Fast, creped, for large particles	DXF13
	Medium-fast, for small particles	SP3003
Removal of particles from used oils	Very fast, wet strength	DXF13









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