



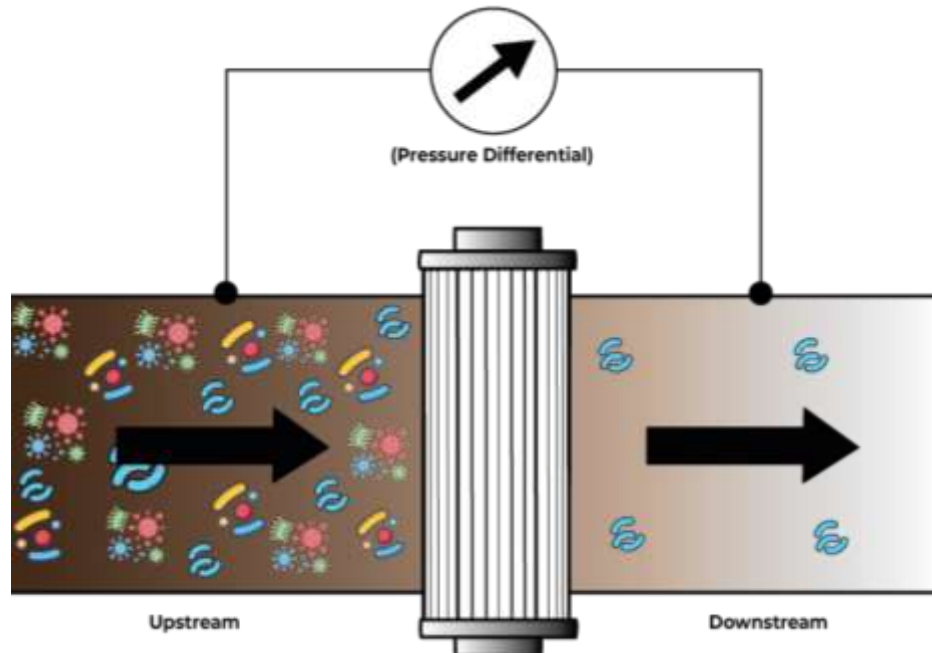
## **FOOD & BEVERAGE CARTRIDGE FILTERS**

Healthcare & Life Sciences

**THE ONLY WAY TO SAY FILTRATION**

## What Cartridge Filter does?

Cartridge Filter is commonly the mechanical or physical operation which is used for the separation of solid from fluid (liquid, steam or gas) by interposing a medium through which only the fluid can pass.



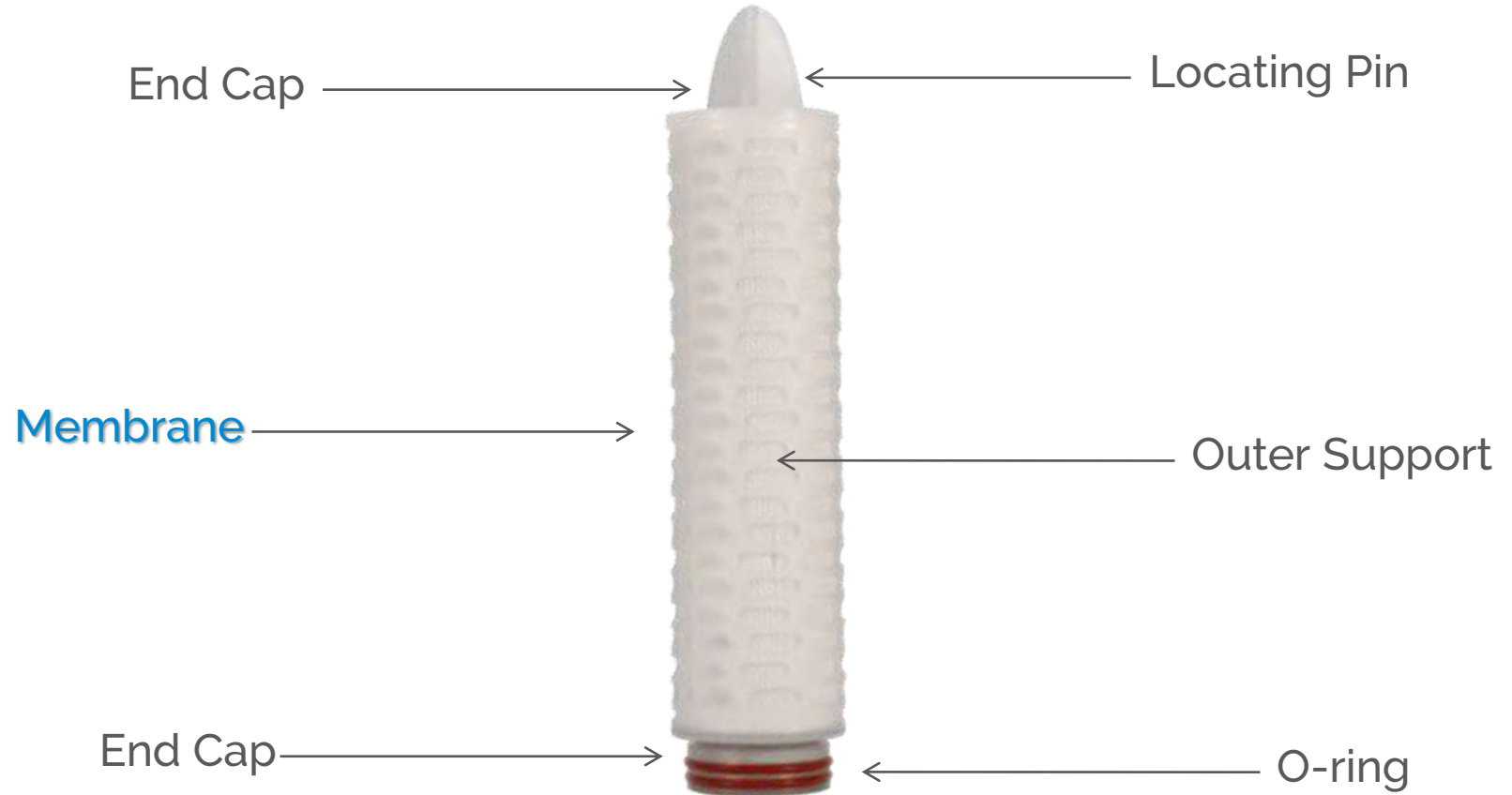
Main criteria for Cartridge Filter are:

- Defined retention rate
- Mechanical & Thermal stability
  - Flow rate
  - Sterilization
  - Integrity test
- Dirt holding capacity



*Typical Pleated Media configuration  
in Cartridge Filters*

## Cartridge Filter Structure



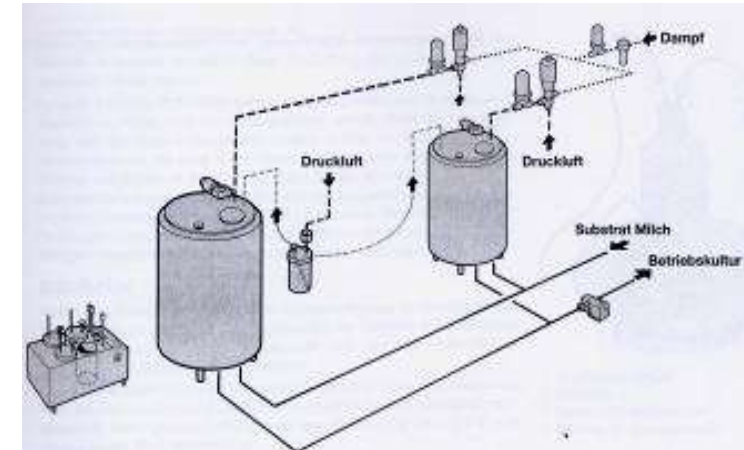


Main media used are:

- PES
- PTFE
- PP
- PVDF
- Glass Fiber
- Stainless Steel

Criteria to choose the right Cartridge Filter are:

- Media (liquid – steam – gas)
- Chemical & Thermal compatibility
- Materials used (hydrophilic – hydrophobic)
  - Needed Pore size
- Needed retention Quality (nominal – absolute – sterile)
  - Housing Connection





## Typical Application in Food & Beverage

- Filtration of air for ventilation of fermentation tanks
- Mineral water filtration
- Filtration of steam to heat up food and beverages
- Filtration of CO<sub>2</sub> for counter pressure gas
- Beer Filtration
- Many other depending on specific process



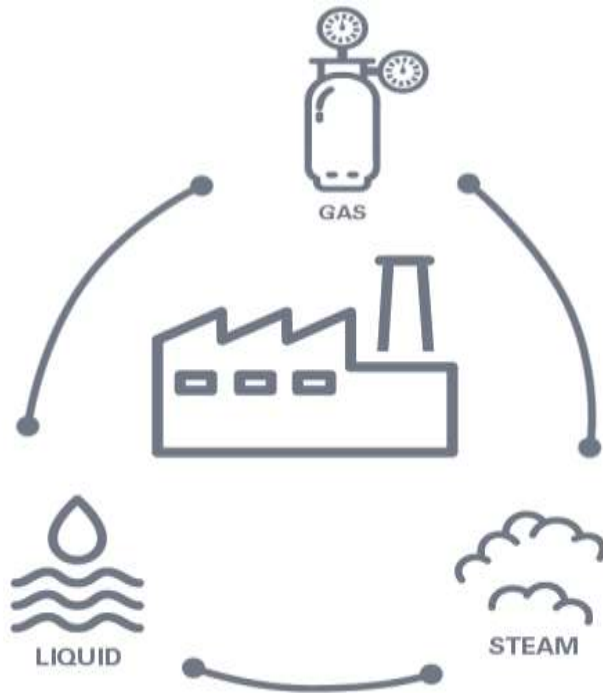
## Cartridge Filter Food & Beverage Markets

- ✓ Non-alcoholic beverages
- ✓ Alcoholic Beverages
- ✓ Dairy products
- ✓ Packaged foods
- ✓ Food ingredients
- ✓ Pet Food





## Classification of Cartridge Filter applications



- Liquid Filtration
- Gas Filtration
- Steam Filtration



## Liquid Filtration

### Water Sources

Water coming from a well or municipal source should be passed through a coarse filter when entering the plant

### Clean in Place Solutions

For general cleaning

### Process Liquid

Comes indirectly in contact with the final products,  
e. g. rinse water for bottle cleansing

### Ingredient Liquid

Comes directly in contact with the final products e. g. Water that comes as ingredients of the final products

### Final Product

Most beverages, such as beer, wine, juice, and bottled water require a final filtering before being bottled to ensure higher quality, longer shelf life, and consistent flavor.



## Features

- Retention rates from 0.2 to 50 microns
- High filtration efficiency
- Broad chemical compatibility
- High flow rate and long service life

Main media used are:

- PES Cartridge Filter
- PP Cartridge Filter
- PVDF (hydrophilic) Cartridge Filter
- Glass Fiber Cartridge Filter
- Stainless Steel





## Gas Filtration

- Plastic (PET) Blow Molding/Cleaning
- Tank Ventilation
- Food Fillings
- Drying
- Packaging
- Air Knives
- Mixing Tanks

For gas filtration, hydrophobic PTFE cartridge filter is the most commonly used.



## Steam Filtration

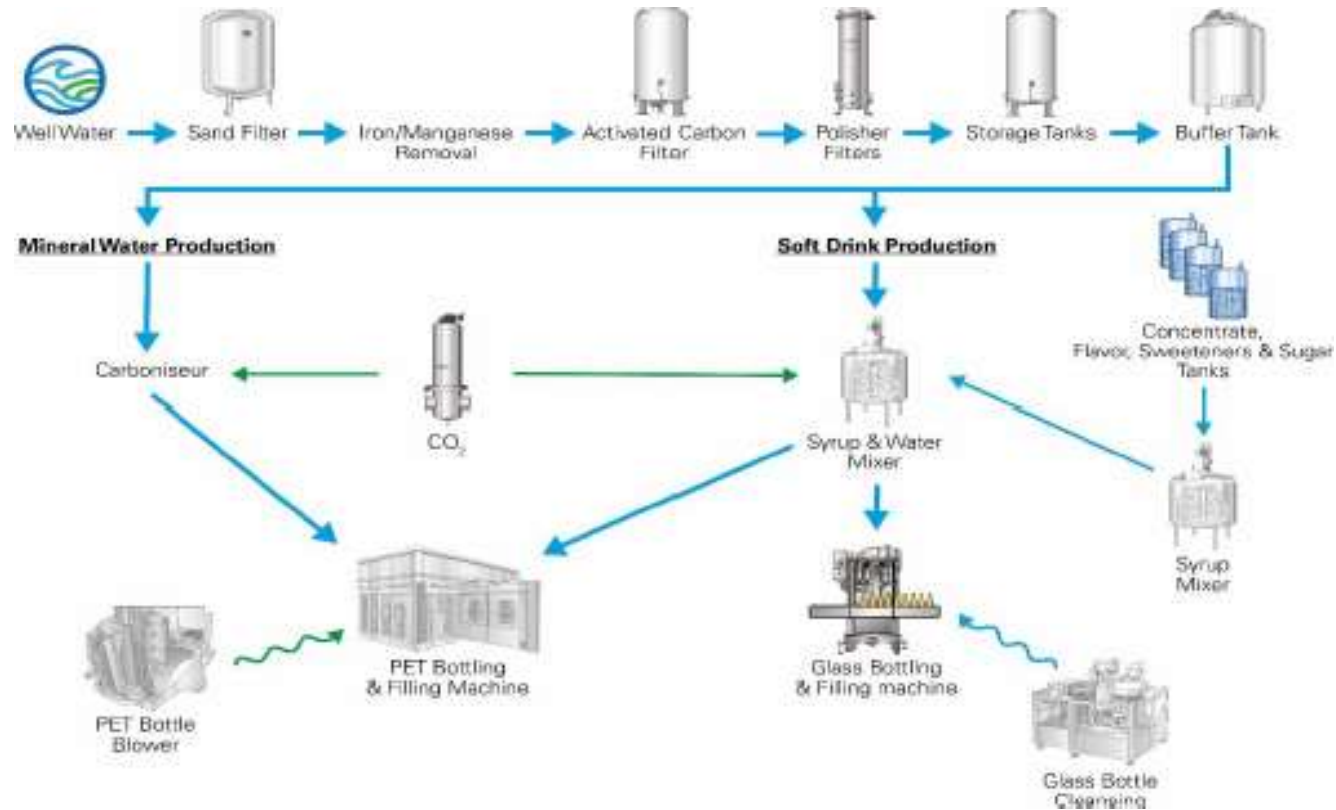
### Process Steam:

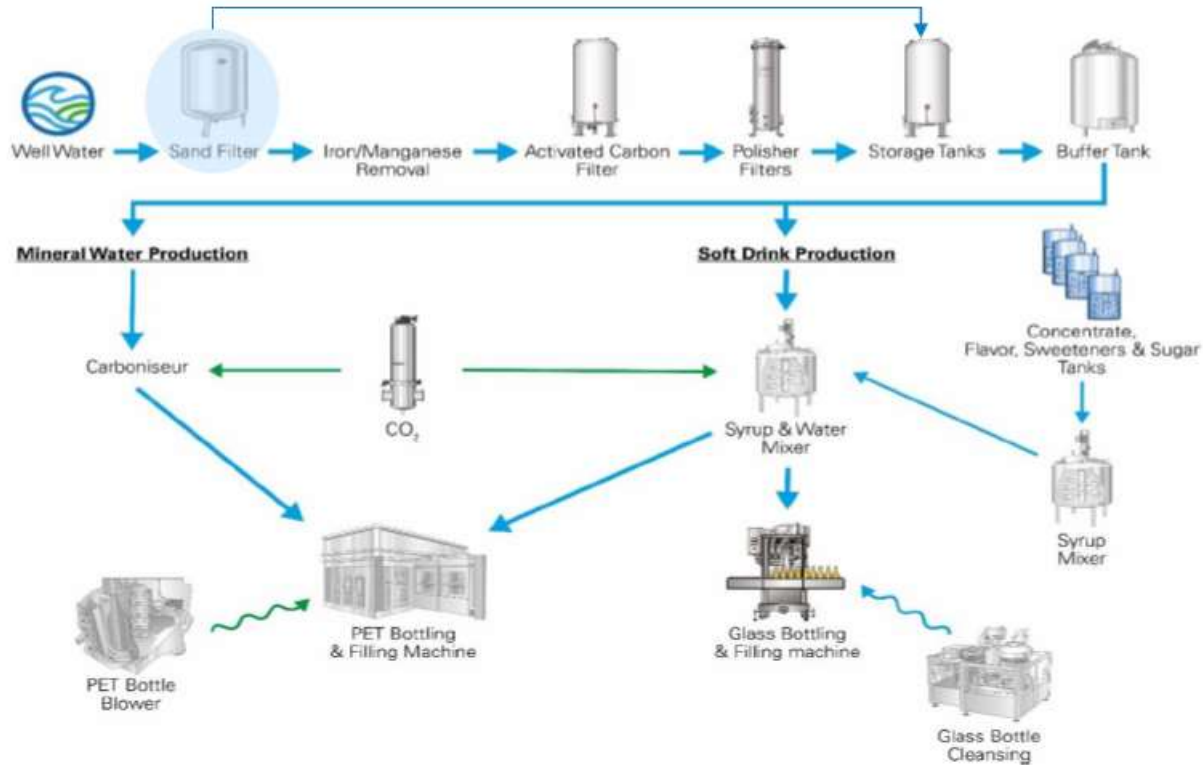
- Cook with indirect heat control temperature
- Generate heat for heat exchange system

### Culinary steam (Clean steam):

- Sterilization of filters and plant equipment
- Direct inject cooking
- High temperature blanching
- Sterilization of final product

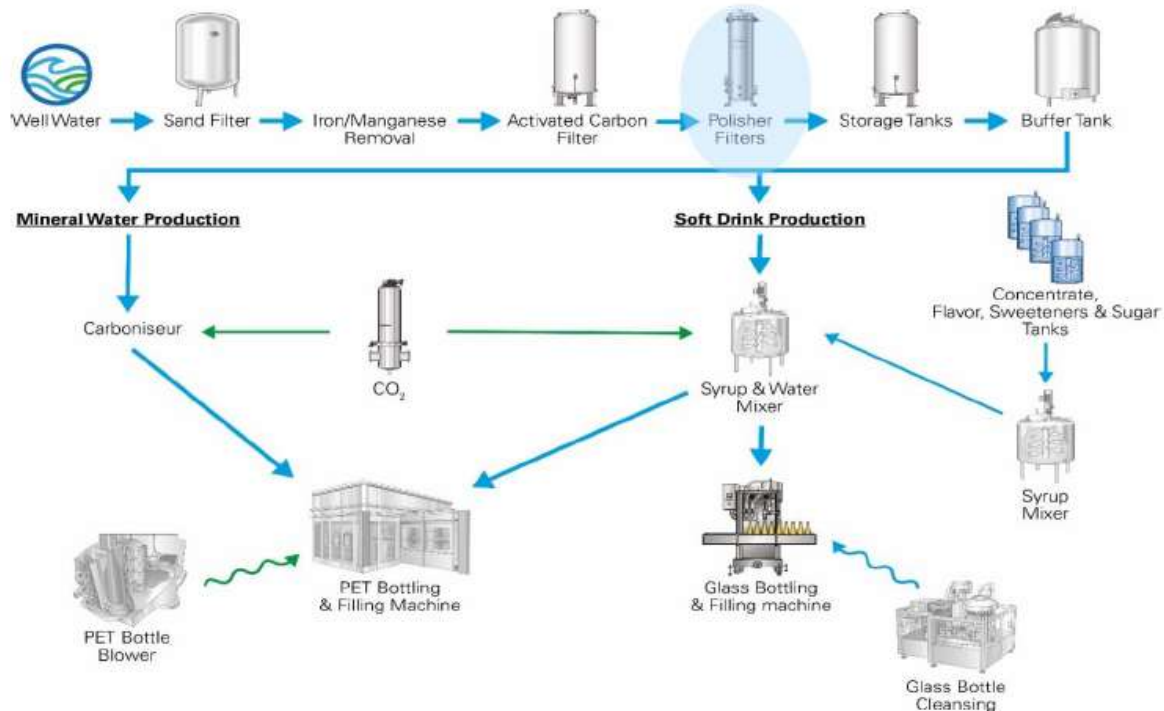
## General installation in F&B industry





Sand filter: Removal of coarse contaminations

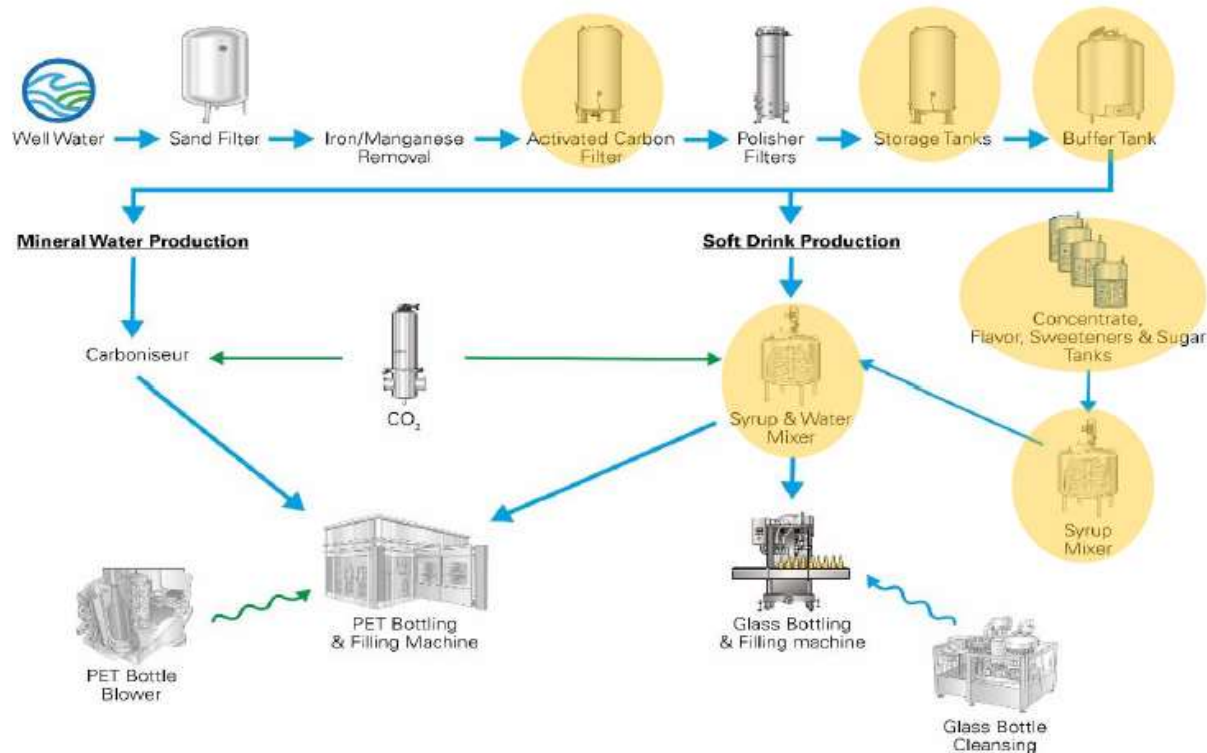
- CFPPP 20MIC PP cartridge
- CFM 20MIC Melt Blown cartridge
- CFW 20MIC String Wound cartridge



Polisher filters: Remove rest contaminants (to protect downstream equipment)

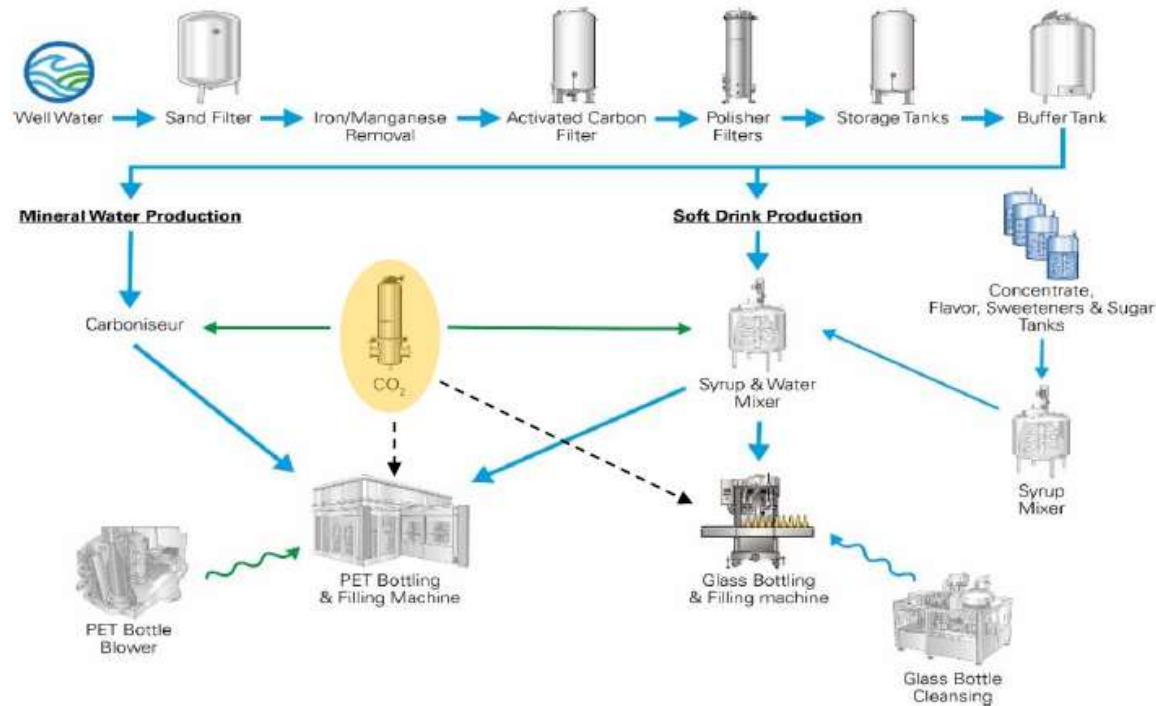
- CFPPP 5MIC PP cartridge





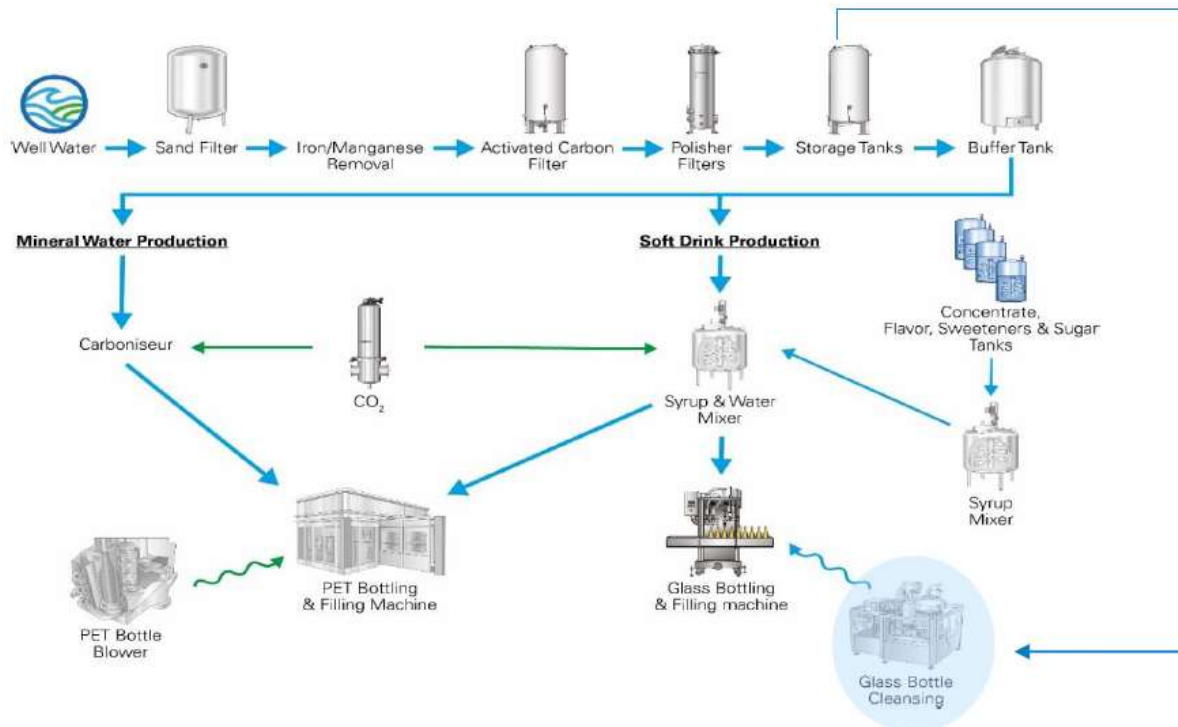
Tank ventilation : filters act as a barrier to prevent airborne contaminants (dust, bacteria, mold) from tanks

CFPPT PTFE(Hydrophobic) cartridge



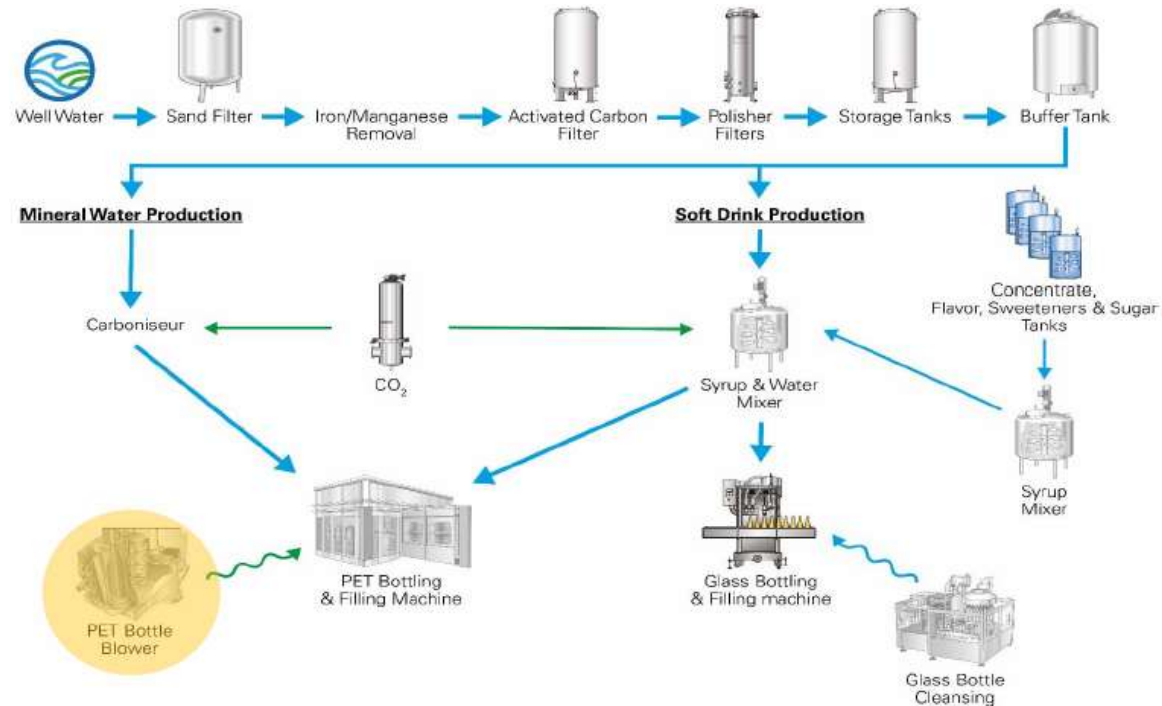
CO<sub>2</sub> Supply: CO<sub>2</sub> can be added to the finished products or may be mixed at earlier stage

- CFPPT 0.2MIC PTFE(Hydrophobic) cartridge



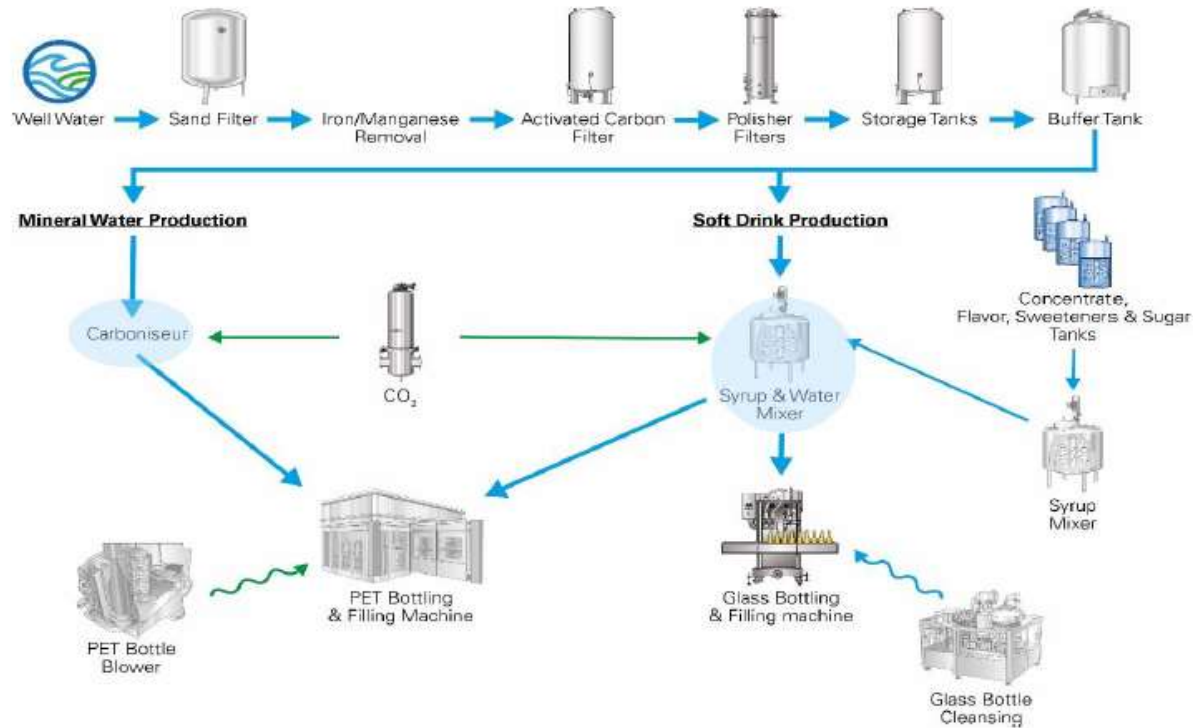
Rinse water: To remove dirt and dust in bottles before filling process → to ensure cleanliness → Filtration of rinse water: particle free

- CFPPP 1MIC PP cartridge



The compressed air used in the bottle blower must be free from contaminants

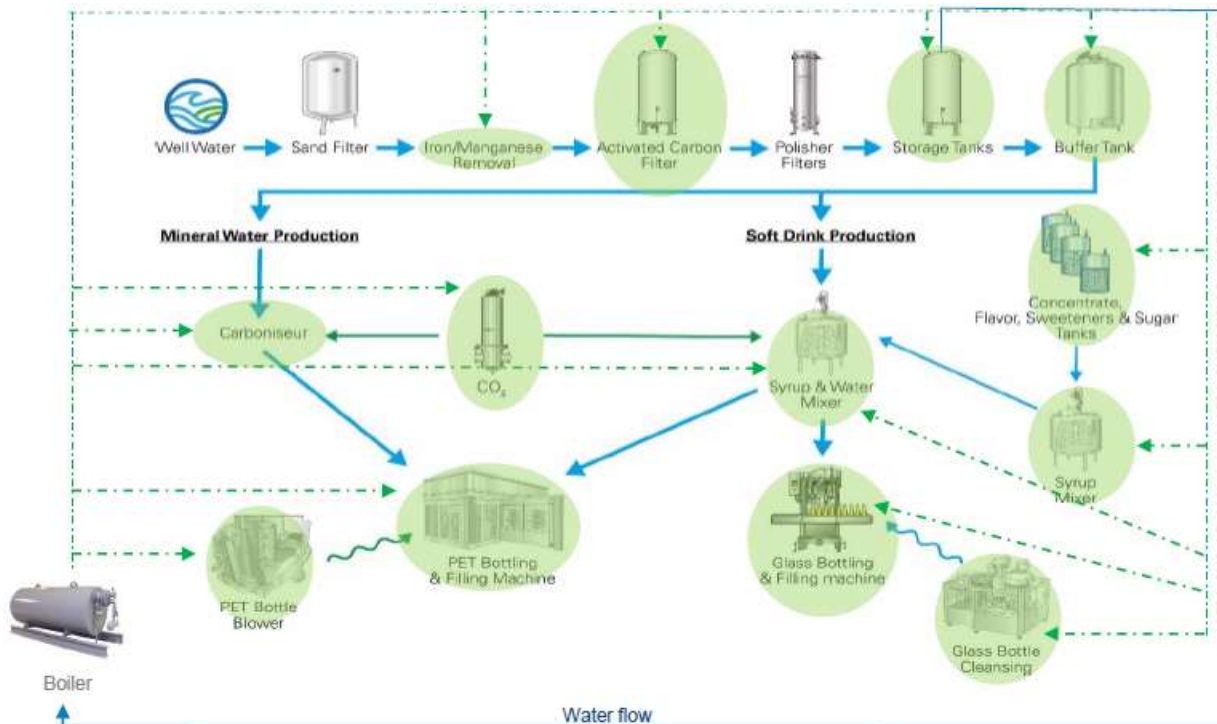
- CFPPT 0.2MIC PTFE cartridge



Sterile filtration of the final products

Just before the bottling, the final filtration removes the remaining microorganism / fine particles from the final products

- CFPPS 0.2MIC PES cartridge



Steam line

Regeneration of carbon filter, sterilization of gas and liquid filters

- CFS 25/5MIC Stainless steel cartridge



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**THANK YOU**