

WHITE PAPER

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# IMPROVING WATER FILTRATION IN FOOD & BEVERAGE PROCESSING

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Optimization strategies  
for a competitive industry

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## **Water Filtration, a critical element in processing safe and healthy food.**

Filtration is a key component in producing purified water used in food processing. From a simple one-step operation to a complex process that includes other separation technologies, membrane and depth filters play a critical role in assuring contaminant removal.

To stay competitive, it is more important than ever to optimize process efficiencies in order to save production costs and avoid the consequences of downtimes.

This white paper provides information to help educate and inform the reader on best practice methodologies.

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# Delivering a Quality Product

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Filtration is a key component in producing purified water used in food processing and delivering quality products. The need for efficient and effective filtration systems has become an essential component to delivering quality product. Depending on the application or the regulating body setting the rules, quality expectations may vary dramatically from one process to another. Filters that remove bacteria, mold, yeast and endotoxins, as well as inorganic matter, add a level of retention and assurance that your water purification goals are met.

Global Filter provides cartridges, bag filters and vessels for the purification of water when your filtration goal is bio-burden control, sterilizing and/or fine and ultrafine particle removal.

As a result, your water can achieve the necessary level of purity for bottling, hydrating raw ingredients, cleaning process equipment and filling applications. These filters are installed in several locations along your process to eliminate bacteria and remove the contaminants that discolor and change the taste of your final product. From the original source (municipal, well or spring) to the final filling machine, our water filtration products treat both liquids and process gases while also protecting tank contents.





# Filtration Solutions Have a Direct Impact on the Quality of your Products

## Selecting the Best-Suited Media

Several factors must be considered when selecting the best-suited filtration media including the required flow rate, influent quality, and effluent requirements.

One factor to consider is influent quality. There must be adequate coverage of the effective filtration area (EFA), in order to capture the bulk of incoming solids. Depending upon the particulate distribution, and ambient conditions, coverage can be accomplished with a depth or pleated depth filter.

After solid removal, the focus shifts to the capabilities of the remaining components of the process and the desired final product quality. If reverse osmosis, deionization, or carbon system is present, the system must be protected accordingly. This can be accomplished with the use of a high-purity pleated depth product, such as pleated polypropylene or pleated microglass, which optimizes the cycle lifetime as well as the productivity and prevents premature clogging.



Additionally, the food and beverage product must be bacteriologically stabilized by membrane filtration, to reach the required bacteria level (LRV). Depending on the application, Global Filter offers a wide range of solutions down to 0.2µm with microbial retention performances tested in accordance with ASTM F838. Appropriate regulatory agencies or in-house company guidelines will typically provide membrane requirements for your process.

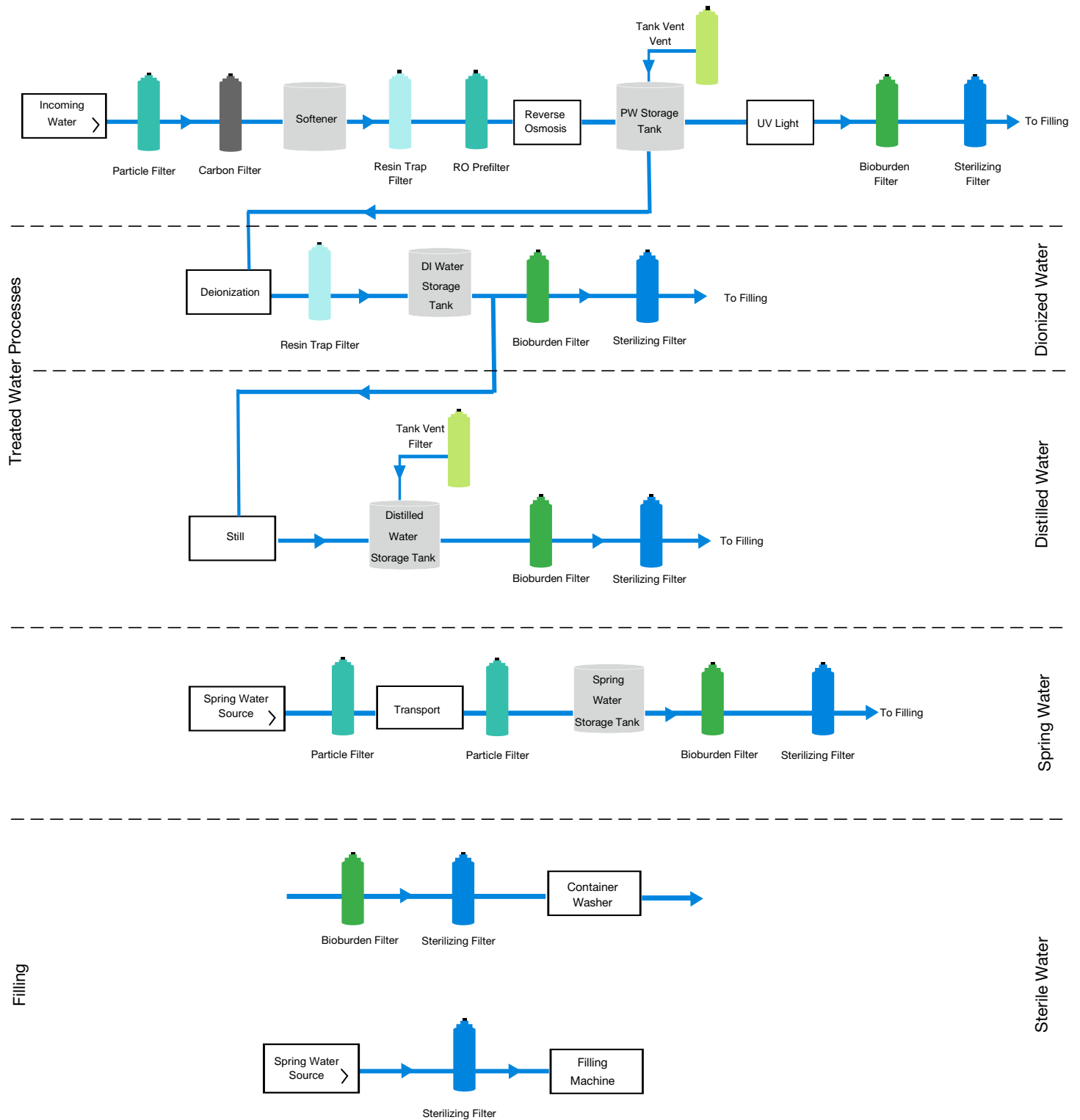
## Recognizing Differences in Process & Product

With regard to the multiple variables in food and beverage manufacturing process, the various levels and types of filtration solutions must be considered.

Typical applications for food and beverage water purification filtration include:

- Dionized Water
- Distilled Water
- Spring Water
- Sterile Water
- Filling
- Treated Water Processes

# Optimizing the Food & Bev Water Purification





# Optimizing the Food & Bev Water Purification

## Particle Filtration & RO Pre-filtration

### High Flow Particulate Removal Filter

HPPP Series

### Meltblown Particulate Removal Filter

GWTB Series Polypropylen Meltblown cartridges

### Pleated Polypropylen Filter

PP-Series Polypropylen Pleated Cartridges

GTCH Multi Cartridge Vessel

Protecting the activated carbon, deionization tanks, and the RO is critical to ensure longer life time. Water or spring wa-ter is typically treated and softened before filtration with a filter that removes particles larger than 10 microns, then filtered down to one to five microns filter to protect downstream equipment. Depending on your flow rate and water quality, the first filtra-tion solution should reduce your wastes and be cost effectiv.

## Carbon Filter

### Carbon Cartridges

GCC Carbon Cartridges

GTCH Multi Cartridge Vessel

Carbon cartridges provide a purification solution as well as taste, odor and color removal. The quality and efficiency of cartridges to remove chlorine, organic compounds is important to protect your resin tanks and also remove micro pollutants. GCC- Series activ carbon cartridges are designed to prevent the release of activated carbon fine.

## Resin Trap Filters

### Polypropylene Pleated Filter

PP-Series Polypropylene Pleated Cartridges

GHLS-Series Pleated Depth cartridges

GTCH Multi Cartridge Vessel

Removing hardness ions (calcium, magnesium, etc..) helps prevent premature fouling of RO membranes. The resin beads installed in softeners will break down over time and introduce resin fines into the water supply. Filters are crucial at this step to trap the fines and prevent them from harming the downstream process.

## Sterilizing Filter

### 0.1µm and 0.2µm Sterilizing Grade Filters

WCPE Series Water Grade PES Membrane

GSTL Sanitary Vessel

AFS Multi Cartridge Sanitary Vessels

Reduces and removes virtually microorganisms and contaminants down to 0.2 micron as final filtration to high purity applications and as further polishing in downstream ultra high purity water systems. Our range of membrane cartridges could serve all your needs from particle re-moval (WCPE-Series) to endotoxin removal (BRHNY+), to meet your quality requirements.

## Bioburden Filters

### Bioburden Filter

BRPES Series PES Membrane

BRHNY+ Series Nylon Membrane

When utilising UV treatment in the purification process, endotoxins are commonly left behind. This negatively charged debris can be removed by implementing a PES or Nylon 6.6 filter with a positive charge.

## Tank Vent Filters

### Tank Sterilizing Grade Vent Filter

PPTFE Series PTFE Membrane

GSTL Sanitary Vessel

Storage and fill tank vent filtration allows for bacteria and particulate-free air to pass during filling and evacuation, protecting the storage tank and its contents from contamination. This filter is typically rated at 0.2 micron and is hydrophobic and bacterial retentive, which prevents moisture airborne contaminants from entering the tank.

# Global Filter Tailors Filtration Solutions To Fit Your Needs.

## SEPARATE YOURSELF FROM YOUR COMPETITION

Global Filter's industry-leading products allow various food and bev applications. Our high-purity pleated depth and membrane filter cartridges lead the industry in quality, performance, and cost-effectiveness. Our customers receive hands-on support in several specialized areas including unparalleled customer service, technically trained staff, efficient customization of products, and stocking agreements. Our products are manufactured in Europe.



### Quality Products

- Constant Quality
- 50 Years of Experience
- Product manufactured in our plants
- ISO 9001 Quality System Management
- CE 1935 / 2004 , FDA, GMP



### Reliability

- Reduce Costly Downtime
- Robust Construction
- Cost-Effective
- Agile Organisation
- Filtration Total Cost Ownership Management



### Fast Delivery

- On-Hand Inventory
- Minimal Lead Times
- Easy Access to Products
- 3 Manufacturing Plants Worldwide

## FILTER VESSELS





# Filtration Elements by Removal Capability

## High Flow Cartridges (< 10.0 micron filtration)

- High Flow Pleated Cartridge
  - HFB

## Meltblown and Carbon Products (>5.0 micron filtration)

- Water Grade Polypropylene Meltblown Cartridge
  - GWTB
- Carbon Cartridges
  - GCC

## Pleated Depth Products (0.2-5.0 micron filtration)

- Pleated Depth Filter Cartridge
  - GHLS
- Pleated Polypropylene Filter Cartridge
  - PP

## Pleated Membrane Products (< 0.2 micron filtration)

- Bio-Burden Reduction Grade Polyethersulfone
  - BRPES
- Pharmaceutical Grade PTFE
  - PPTFE
- Water Grade PES
  - WCPES





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