



F I L T R A T I O N

Target Market:

Water and Waste Water

Application:

Process or Potable Water Prefilter and Final Filtration

Application Description

Water is the most used and filtered material in industrial manufacturing. Water is often one of the most critical materials to the manufacturing process. Water has to be provided with a consistent quality appropriate to the process. Filtration is used to balance the process needs to the fluctuations of the source. Filters are used to remove particles (including microorganisms) from the incoming water. To achieve the desired water quality level economically, several filters are often used in series. The water may be used to clean the product or provide the base or sole ingredient of the product. Water can be an excellent cleaning or ingredient source or a major source of contamination. Filtration is key to providing the former rather than the latter. The degree of filtration – molecular, microorganism, visible particulate or rock and boulders level – is dependent on the particular application. Sand filters, prefilters, resin trap filters, depth filters, meltblown filters, microporous and ultrafiltration membrane filters, nanofiltration and reverse osmosis filters can be used alone or in series. The water quality can be semi-grade (ultra-high purity), pharmaceutical grade (water for injection, irrigation, inhalation), laboratory grade or potable (drinking water).

Material: Porous Polyethylene

Types of Filters Used

Historically, the most common initial filters used in process or potable water filtration are backflushable filters followed by carbon filters and polypropylene depth or pleated cartridges filters. Ultrafiltration, nanofiltration, reverse osmosis, ion exchange, polypropylene resin trap filters, microporous pleated membrane filter cartridges, and ultrafilters may also be used. POREX Radial Cartridge Filters are best used after a sand or carbon filter, as a resin trap filter, as a final filter for non-critical applications, or a prefilter to the microfilter, ultrafilter, nanofilter or reverse osmosis filter.

Purpose of Filtration

The primary purpose of filtration is to remove particles (organic, inorganic, viable, infectious, hard, soft, visible or microscopic) without contributing trace amounts of other potential contaminants such as pyrogens, total organic carbon or dissolved solids. Filters are expected to perform whether the level of particles is high or low. The filters of choice provide all this at an overall economy independent of the quality of the incoming water. Prefilters (depth, meltblown, membrane, etc.) are expected to protect the subsequent filter cost-effectively. Final filters are principally the insurance policy for protection regardless of the conditions.

Common Filtration-Related Problems

- **Insufficient Protection of the Subsequent Filter** - Inappropriate pore size, efficiency rating, or filter bypass are the most common causes
- **High Filter Usage** - Inappropriate prefiltration, too low a surface area, too low a dirt holding capacity or all of the above
- **Low Initial Flow Rates** - Too small a filter area, too low a flow rate filter, or too tight a filter
- **Contaminated Effluent** - Bypass of particulate or particle, organics, or dissolved solids (including metals) coming off the filter
- **Flavor Degradation** - Extractables effecting flavor or RO/carbon not operating properly
- **Highly Variable Filter Life** - Inappropriate prefiltration for variable water source

Sintered High-Density or Ultra-High Molecular Weight Polyethylene

FEATURE	ADVANTAGE	BENEFIT
Rigid, Omni-Directional Pore Structure		
· Absolute Ratings	· Consistent pore structure minimizes performance changes caused by differential pressure	· Reproducible performance
· Narrow Pore Size Distribution	· Highly-effective surface filtration for particles larger than the filter pore size rating	· Allows for effective cleaning, backwash and reuse
· Thermally-Bonded	· Sintered omni-directional pore structure	· No media migration, bypass or unloading from 5 to 100 microns
· Excellent Chemical and Thermal Compatibility	· High chemical resistance of HDPE and UHMWPE · Completely incineratable with a high BTU output	· No chemical degradation resulting in bypass or contamination of the process fluid · No incineration residue
Unique, Molded Radial Design		
· High Surface Area	· Low pressure drop and higher flow rate	· Increased life or fewer filters results in lower filtration costs
· Open Channels	· Easy access to filtration area	· Effective filtration and cleaning
· Single-Layer Structural Media	· Eliminates unnecessary support materials	· Improves backwash and cleanability
· Rigid, One-Piece Construction	· Multiple diameters, lengths and end configurations	· Easily adapts to existing filtration systems

PERFORMANCE COMPARISON

Rigid, Omni-Directional Pore Structure			Unique, Molded Radial Design		
POREX Radial Cartridge Filter vs	Depth Cartridges	Pleated Cartridges	POREX Radial Cartridge Filter vs	Depth Cartridges	Pleated Cartridges
Micron Rating	= / -	= / -	Backflushable	+	+
Absolute Filtration	= / +	= / +	Surface Area	+	-
Surface Retention	= / +	+	Molded Construction	+	+
Classification Filtration	= / +	+	Rigid Structure	= / +	+
Sintered Process	+	+	Open Pleats	+	+
Polyolefin Material	=	=	Disposal Cost	+	+
Chemical Compatibility	=	=	Performance Priced	+	+
Thermal Compatibility	=	=	Single Material	=	= / +
			Vessel Seal	=	=
			Housing Fit	=	=

Symbol Key: = Porex equivalent + Porex advantage - Porex potential limitation

