

# Process Filtration & Water Treatment Solutions for Cosmetics and Toiletries





# filerder

EXPERTS IN FILTRATION

Filerder has been supporting manufacturing businesses with filtration and water treatment solutions for nearly 4 decades and offers expertise through knowledge, a broad range of technologies and a highly responsive service ethos that keeps purchasing costs at a minimum whilst offering robust, quality products.



# Cosmetics and Toiletries

## Challenges with solutions

The world of retail cosmetics demands high-quality products free from visual defects, irregular consistency and contaminants that can spoil or reduce the products' shelf life.

Many cosmetic liquids produced require process filtration to meet the quality standards expected by consumers. Whether the liquid is high viscosity, low viscosity or requires dilution, Filerder supplies solutions to the challenges often faced by cosmetic and toiletry producers.

### The Challenges

In this guide we focus on solutions to the most commonly faced challenges with cosmetic and toiletry liquids.

- Visible particles
- Removal of lumps, gels and irregular shaped contaminants
- Coagulation of natural ingredients
- Low batch yield
- Pure water production for dilution, wash down and boiler feed
- Cleanliness and cross-contamination
- Continuous quality of filter product, supply and stock levels



### Typical Technologies Applied



Bag  
Filtration



Depth  
Filtration



Surface  
Filtration



Reverse  
Osmosis



Deionisation

# Process Filtration of High Viscosity Liquids



## SOLUTIONS For High Viscosity Liquids

Thick liquids, such as shampoos, body lotions, face creams and toothpaste, flow very slowly and are often pumped through process filtration to remove lumps and gels that would otherwise spoil the use of the product.

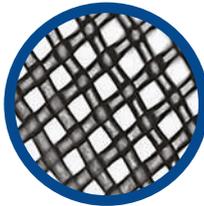
The filtration solution requires a large surface area with little depth to the media, allowing good rates of flow with minimal pressure drop and the ability to trap potentially high levels of contaminant. The array of cosmetic liquids and contaminants processed require the solution to be available in a variety of media and a wide range of micron ratings.

Cosmetic liquid processing typically involves disposal of the filtration media due to the high levels of contaminant removed and to prevent cross-contamination. The use of lower cost consumables in these applications is often preferred.

## Technology Options

- Bag – Nylon mesh for bulk solids removal (50-1000 µm)
- Bag – Polypropylene felt for finer grades of filtration (1-200 µm)
- Bag – Polyester felt for higher temperatures to 150°C (1-200 µm)

**Nylon Bag**  
High Dirt Holding



**Polypropylene Bag**  
Finer Filtration

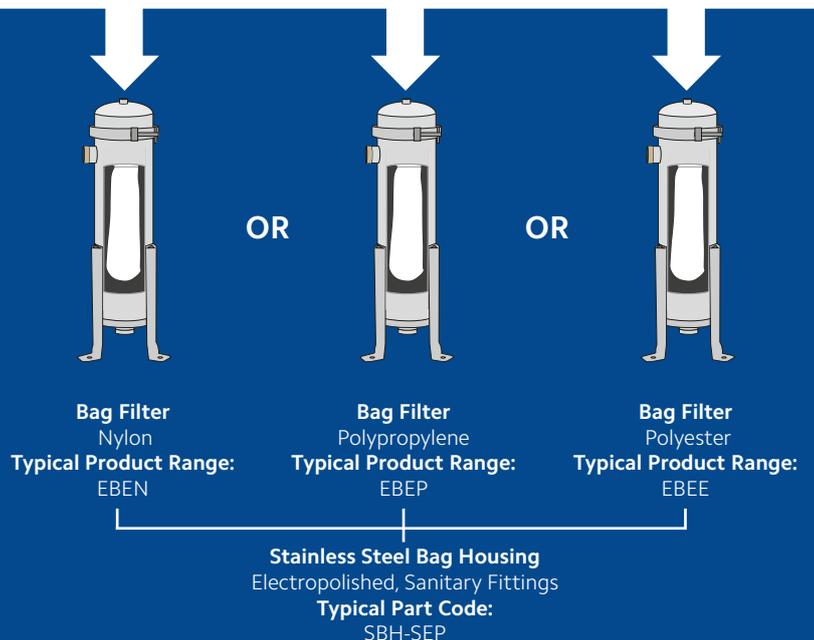


**Polyester Bag**  
High Temperatures



## Fileder Recommends

Bag filtration is the simplest and most cost-effective solution to the challenges of removal of lumps, gels and irregular shaped contaminants from high viscosity cosmetic liquids. These liquids are typically pumped through Nylon mesh bags, as the requirement is often the removal of relatively large bulk solids in the range of 100 to 800 micron. This filtration method removes unwanted contaminants and helps the consistency of the liquid, increasing the usable yield from the batch and meeting the quality standards that satisfy the consumer.



# Process Filtration of Low Viscosity Liquids



## SOLUTIONS

### For Low Viscosity Liquids

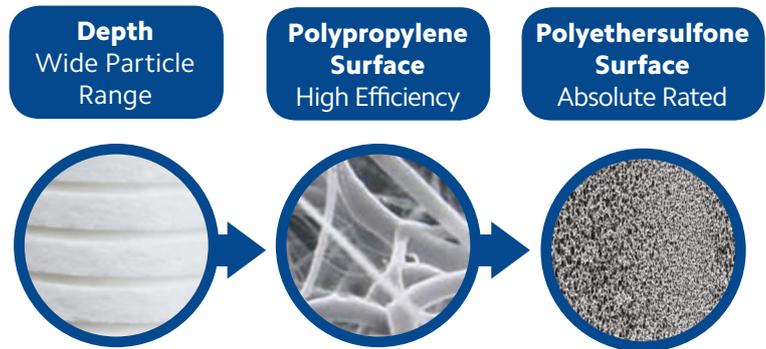
Thinner cosmetic liquids, such as fragrances, cleansers, essential oils and mouthwashes, are typically filtered, removing unwanted visible contaminants to improve the aesthetics of the product for the consumer.

The filtration solutions used need to trap visible particles and targeted contaminants in high counts and at flow rates suited to production and packaging line efficiency. Meeting quality standards for cosmetic liquid filtration requires ranges of filtration media types with options of removal efficiencies, covering typically 0.2-30 micron.

A targeted approach to contaminant removal is used, for instance, to remove elements of natural ingredients that can reform in the packaging. Typically, a cascade of filtration is applied to reduce consumable cost by using lower efficiency media for bulk contaminant removal before filtering to the desired micron rating with a higher efficiency and/or absolute-rated media.

## Technology Options

- Depth cartridge – Catches the widest range of particle sizes (0.5 - 150 µm)
- Surface cartridge – High efficiency polypropylene is used for fine filtration (0.1 - 100 µm)
- Surface cartridge – Polyethersulfone is absolute rated for targeted removal (0.05 - 0.65 µm)



## Fileder Recommends

Depth and surface filtration cartridges are used to remove quantities of different sized particulate down to the desired classification that meets the specification for the final cosmetic product. A typical filtration cascade used in fragrance production demonstrates the order filter technologies are applied. A depth cartridge removes the bulk of a wide range of particulate sizes, the high efficiency polypropylene cartridge targets a specific size range of particles and protects the absolute rated polyethersulfone membrane media cartridge.



# Pure Water Production for Dilution

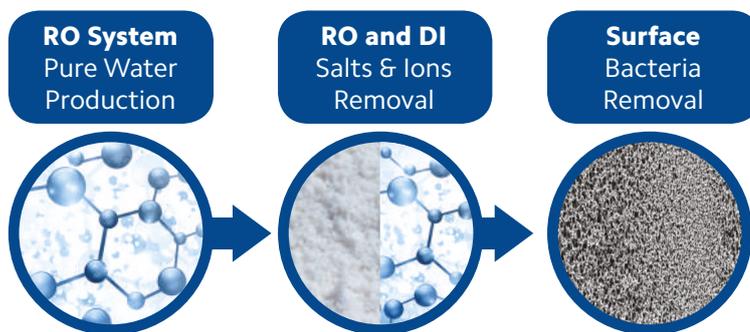


## SOLUTIONS Pure Water Production

A good number of cosmetics and toiletries involve pure water as an ingredient. With many contaminants present in water it is often deemed necessary to strip the majority of these out to produce a stable base to work from, which has minimal impact on the other ingredients. Used in the production of soaps, shampoos, mascaras, lip gloss and wet wipes to mention a few, the production of pure water and the control of bacteria growth in the water system are important elements to be considered by cosmetic and toiletries producers. Pure water will often also be used for wash down of vessels and for feeding the boiler on site, to reduce the number of 'blow-downs' required and save energy costs. The water quality required is often specified by the client and typically falls into one of two categories, either reverse osmosis (RO) or deionisation (DI).

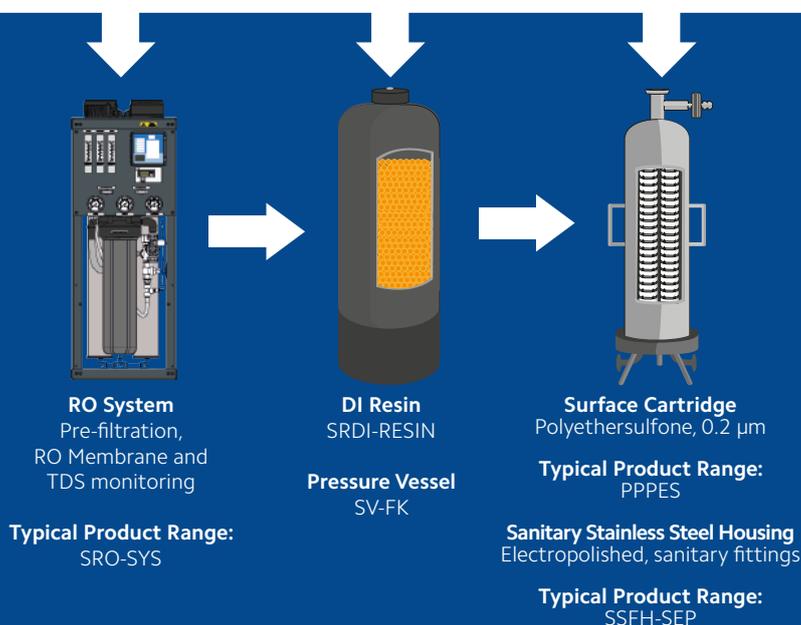
## Technology Options

- Reverse Osmosis (RO) – Typically 95-98% removal of salts and ions
- Combination of RO and DI – Economic removal of salts and ions
- Surface cartridge – Removal of bacteria in water systems



## Fileder Recommends

Cosmetics manufacturers use reverse osmosis systems, comprising of a particle removal stage, a chlorine and organics removal stage and then an RO membrane stage which separates out the majority of the remaining salts, ions and other contaminants to produce pure water, termed 'permeate'. If further removal of salts and ions is required, the permeate is passed over charged plastic beads that attract ions to their surface, known as mixed-bed deionisation resin. Pure water encourages bacteria growth in water systems, these bacteria are removed with polyethersulfone membrane cartridges.



# Related Products

## High Viscosity Liquids



Economic Nylon Bag



Economic Polypropylene Bag



Economic Polyester Bag



Stainless Steel Cartridge

## Housings



Stainless Steel Bag Housing

## Low Viscosity Liquids



Spun-Bonded



Efficient Pleated Polypropylene



Absolute Pleated Glass Fibre



Absolute Pleated Polyethersulfone



Single | Multi  
Stainless Steel Cartridge Housings

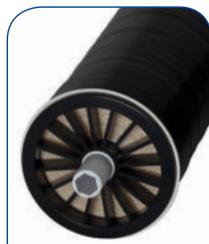
## Pure Water Production



RO Systems from 2 to 20 lpm product water



RO Membrane



Pressure Vessel



Resin



TDS Meter

## Certification

We only supply products from reputable, traceable and tested brands. Filerder's portfolio offers peace of mind, providing solutions that meet the stringent requirements of varying industry and legal standards. Please refer to product information found on our website, or contact us directly, for clarification of individual product certification.



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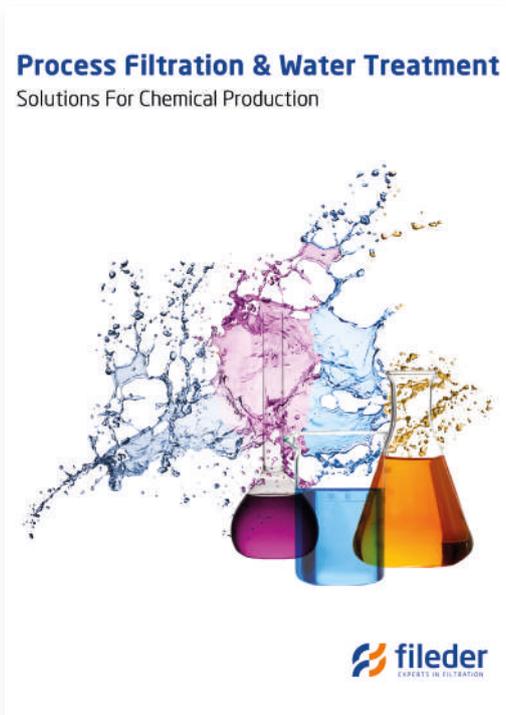


Product Brochures



	Reverse Osmosis Components
	Stainless Steel Filter Housings
	Plastic Filter Housings
	Carbon & Resin Cartridges
	Depth Filtration
	Reverse Osmosis Systems
	Pressure Vessels & Media
	High Flow Filtration
	Water Softeners
	Stainless Steel Cartridges
	UV Systems
	Food Service
	Large Diameter Filtration
	Filtration & Water Treatment Rental
	Installation & Servicing

Application Brochures



	Solutions for Bacteria & Parasites
	Solutions for Hospitals
	Solutions for Beverage Production
	Solutions for Food & Dairy Production
	Solutions for Surface Finishing
	Solutions for Microelectronics
	Solutions for Buildings & Facilities Management

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