

Membrane Filtration

BECO MEMBRAN PS Filter Cartridges

1 A 4.3.4 · EB
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Applications

The BECO MEMBRAN PS filter cartridges are available with retention rates of 0.2 µm, 0.45 µm, 0.65 µm and 0.8 µm, and are optimized for the requirements of final filtration of beverages. In addition to reliable and safe separation of micro-organisms, the BECO MEMBRAN PS filter cartridges are characterized by long service life. Due to their separation characteristics, BECO MEMBRAN PS filter cartridges are used for the cold-sterile filtration of

- ▶ Wine, sparkling wine
- ▶ Beer; mineral water
- ▶ Cider
- ▶ Liquid foods
- ▶ and filtration applications in the pharmaceutical, cosmetics, chemical and electronics industries.

Configuration of the filter cartridge

BECO MEMBRAN PS filter cartridges are made using high-quality polyethersulfone membranes. The membranes are protected by polyester layers and have broad chemical compatibility. The internal and external polypropylene support core ensures maximum mechanical stability. All materials used ensure product-neutral filtration without adsorption or particle migration. The BECO MEMBRAN PS filter cartridges therefore meet the requirements of the customer in terms of safe, gentle final filtration of his products.

Materials used:

Filter membrane:	polyethersulfone
Support layers:	polyester
Internal and external support body:	polypropylene
End caps/adapters:	polypropylene; adapter with stainless steel ring
O-rings:	silicone (standard)

All materials used meet the requirements of USP-XXII Class VI-121 °C (250 °F) and are thermally bonded without the use of adhesives.

Characteristics and Advantages

- ▶ High flow rates with low pressure differences
- ▶ Safe separation of micro-organisms, according to the chosen pore width
- ▶ Integrity test feasible
- ▶ The material used enable regularly cleaning and sterilization cycles, thus enabling very more economic operation
- ▶ Preservation of all organoleptic product attributes through inert filter medium
- ▶ Broad chemical compatibility

Technical Data

Length	Filter surface area
10"/ 250 mm	0.7 m ² (7.5 ft ²)
20"/ 500 mm	1.4 m ² (15.1 ft ²)
30"/ 750 mm	2.1 m ² (22.6 ft ²)
40"/1000 mm	2.8 m ² (30.1 ft ²)

Diameter	70 mm (2.75 in)
Max. operating temperature	80 °C (176 °F)
Max. differential pressure	5.0 bar (72.5 psid) at 25 °C (77 °F)

Flow rates/10" element	Water flow l/h (gpm) Δp = 0.1 bar (Δp = 1.45 psid)
PS020 (0.20 µm)	1200 (5.3)
PS045 (0.45 µm)	1700 (7.5)
PS065 (0.65 µm)	1900 (8.4)
PS080 (0.80 µm)	2300 (10.1)

Steam Sterilization

BECO MEMBRAN PS filter cartridges can be steamed or autoclaved at 121 °C (250 °F) max. Sterilization with hot water or chemical cleaning via CIP with conventional cleaners is also possible.

Titer Reduction for each 10" Element

Pore size	Test organism	Titer reduction
PS020 (0.2 µm)	Brevundimonas diminuta	>/= 10 ⁹
PS045 (0.45 µm)	Leuconostoc oenos	>/= 10 ¹⁰
PS065 (0.65 µm)	Leuconostoc oenos	>/= 10 ⁸
PS080 (0.8 µm)	Saccharomyces cerevisiae	>/= 10 ¹⁰

Integrity Test

Filter cartridge type	Integrity test for 10" filter cartridge		
	Test pressure bar (psig)		Max. diffusion rate for each 25 cm (10") element
PS020	2.2	(32)	$\leq 10\text{ ml/min}$
PS045	1.2	(17)	$\leq 20\text{ ml/min}$
PS065	0.9	(13)	$\leq 20\text{ ml/min}$
PS080	0.6	(9)	$\leq 20\text{ ml/min}$

Sterilization

Steam sterilization:

Using steam up to 121 °C (250 °F) max.

Duration: 20 minutes min. after steam emerges from all openings of the filtration system.

Hot water sterilization:

Using water up to 85 °C (185 °F) max.

Duration: 30 minutes min. once 80 °C (176 °F) is reached from all openings of the filter system. The water should be softened and filtered (approx. 1 µm) in order to avoid lime precipitation, which could lead to premature clogging of the filter cartridge.

Rinsing/regeneration:

BECO MEMBRAN PS filter cartridges should be rinsed daily after use in the direction of product flow using filtered (approx. 1 µm), softened water under counterpressure. This will largely remove any deposited, water-soluble trub substances such as polysaccharides (glucanes), proteins, tannins, tartaric acid crystals. Rinsing with hot water (85 °C (185 °F) max.) will usually also remove stubborn residues, if used in time. The hot water may remain in the filter over night.

Note: more detailed information regarding regeneration and chemical cleaning can be found in our Technical Information 1 A 4.3.4.1

Ordering Information

Filter cartridges with protective foil in carton
HS customs tariff: 8421 99 00.

Filter cartridge type	Retention rate	Adapter	Length nom.	Gasket
PS	020 = 0.20 µm	0 = Code 0	1 = 10"/ 25 cm	S =
		2 = Code 2	2 = 20"/ 50 cm	silicone
	045 = 0.45 µm	5 = Code 5	3 = 30"/ 75 cm	
	065 = 0.65 µm	7 = Code 7	4 = 40"/100 cm	
	080 = 0.80 µm			

Example:

PS	020	7	1	S
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BECO MEMBRAN PS filter cartridge 0.2 µm retention rate; Code 7, 10"

Adapter Codes

Code 0	Code 2
2-222 O-ring without centering tip	2-222 O-ring 3 bayonet adapter with centering tip



Code 5	Code 7
2-222 O-ring with centering tip	2-226 O-ring bayonet adapter with centering tip



Safety

When used and handled correctly, there are no known unfavorable effects associated with this product. BECO MEMBRAN PS filter cartridges do not require the provision of safety-relevant information.

There are no known risks to humans or the environment during storage, handling and transport.

Disposal

BECO MEMBRAN PS filter cartridges should be treated as industrial waste. Any local and other official regulations must be followed, taking the product to be filtered into account.

Storage

BECO MEMBRAN PS filter cartridges should be stored in their original packaging, and in a dry, odor-free and UV ray protected place. Never store the product near evaporating chemicals, oils or fuels etc. The filter cartridges should be used within 2 years after delivery.

Certified Quality

During the production process, BECO MEMBRAN PS filter cartridges are monitored constantly to ensure consistently high quality. All BECO MEMBRAN PS filter cartridges are subjected to an integrity test during production.



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