

Membrane Filtration

BECO MEMBRAN PSplus Filter Cartridges

1 A 4.3.5 · EB
02/2010

Application

BECO MEMBRAN PSplus filter cartridges are available with separation rates of 0.2 µm, 0.45 µm, 0.65 µm and 0.8 µm, and are optimised for the requirements of final filtration of various beverages.

The specific advantages of the BECO MEMBRAN PSplus filter cartridge are:

- ▶ Safe separation of microorganisms, according to the chosen pore width
- ▶ The materials used enable regular cleaning and sterilisation cycles and therefore very economic operation
- ▶ Easily wettable, which means the integrity test is straightforward
- ▶ Preservation of all organoleptic product attributes through inert filter medium
- ▶ Wide chemical compatibility

Filter Cartridge Design

BECO MEMBRAN PSplus filter cartridges are made using high-quality polyethersulfone membranes. The membranes are protected by polyester support fleeces and offer wide chemical compatibility. An inner and outer support core made of polypropylene ensures maximum mechanical stability. The nylon end caps facilitate wettability of the membrane filter cartridges for the integrity test.

The BECO MEMBRAN PSplus 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 fleeces: | polyester |
| Internal and external support body: | polypropylene |
| End caps/adapters: | nylon, adapter with stainless steel ring |
| O-rings: | silicone (standard) |

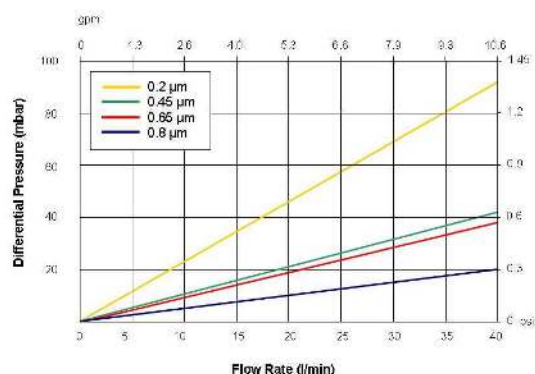
The plastic components meet the requirements of Directive 2002/72/EC and amendments. All materials used meet the FDA requirements according to 21 CFR § 177.

Technical Data

| Nom. | Filter 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"/1,000 mm | 2.8 m ² (30.1 ft ²) |

| | |
|---------------------------------------|--|
| Diameter: | 70 mm (2,75 in) |
| Maximum operating temperature: | 80 °C (176 °F) |
| Maximum differential pressure: | 5.0 bar at 20 °C (72.5 psid/68 °F) 2.0 bar at 80 °C (29 psid/176 °F) 0.3 bar at 121 °C (4 psid/250 °F) |
| Sterilisation with hot water: | max. 90°C (194 °F) |
| Sterilisation with steam: | max. 121 °C (250 °F) 100 cycles at 110 °C (230 °F) for 30 minutes |

Flow Capacity (guide values*)



*measured per 75 cm (30")element with water at 20 °C 68 °F)

Titre Reduction

| Pore size | Test organism | Titre reduction /cm ² |
|-----------------|--------------------------|----------------------------------|
| PES02 (0.20 µm) | Brevundimonas diminuta | > 10 ⁷ |
| PES04 (0.45 µm) | Serratia marcescens | > 10 ⁷ |
| PES06 (0.65 µm) | Saccharomyces cerevisiae | > 10 ⁷ |
| PES08 (0.8 µm) | Saccharomyces cerevisiae | > 10 ⁶ |

Integrity Test

| Filter cartridge types | Integrity test for 10" filter cartridge | |
|------------------------|---|---------------------------------------|
| | Test pressure [bar/psig] | Max. diffusion rate per 25 cm element |
| PES02 | 2.4/35 | <= 20 ml/min |
| PES04 | 1.7/25 | <= 20 ml/min |
| PES06 | 1.0/14.5 | <= 20 ml/min |
| PES08 | 0.6/9 | <= 20 ml/min |

Sterilisation

Steam sterilisation:

With steam at 110°C (230 °F) / 0.5 bar (7 psig).
Duration: 20 minutes min. after steam emerges from all openings of the filtration system.

Hot water sterilisation:

Using water up to 90°C (194 °F) max.
Duration: at least 30 minutes once 85°C (185 °F) is reached from all openings of the filtration system. The water should be softened and filtered (ca. 1 µm) in order to avoid lime precipitation that could lead to premature clogging of the filter cartridge.

Flushing/Regeneration

BECO MEMBRAN PSplus 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 haze substances such as polysaccharides (glucanes), proteins, tannins, tartaric acid crystals. Rinsing with hot water (80°C/176 °F) will usually also remove stubborn residues, if used in time. The hot water may remain in the filter overnight.

Note: Detailed information on regeneration and chemical cleaning can be found in our User Note 1 A 4.3.5.1.

Ordering Information

Filter cartridges with protective foil in carton

HS customs tariff no: 8421 99 00

| Filter cartridge type | Retention rate | Adapter | Nom. length | Gasket |
|-----------------------|----------------|-------------|-----------------|----------|
| PES | 02 = 0.20 µm | 0 = Code 0 | 1 = 10"/ 25 cm | S = |
| | 04 = 0.45 µm | 2 = Code 2* | 2 = 20"/ 50 cm | silicone |
| | 06 = 0.65 µm | 7 = Code 7 | 3 = 30"/ 75 cm | |
| | 08 = 0.80 µm | | 4 = 40"/ 100 cm | |

* Code 2 can be used instead of Code 5.

Example:

| | | | | |
|-----|----|---|---|---|
| PES | 02 | 7 | 1 | S |
|-----|----|---|---|---|

BECO MEMBRAN PSplus filter cartridges; 0.2 µm retention rate; Code 7; 10"

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Adapter Codes

| Code 0 | Code 2 |
|--------------------------------------|--|
| 2-222 O-ring without centre point | 2-222 O-ring 3-way bayonet adapter with centring point |



| Code 7 |
|---|
| 2-226 O-ring 2-way bayonet adapter with centring point |



Safety

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

Storage, handling and transport do not present any environmental and health risks.

Disposal

BECO MEMBRAN PSplus filter cartridges should be treated as industrial waste. Any local and other official regulations in relation to the filtered product must be followed.

Storage

BECO MEMBRAN PSplus filter cartridges should be stored in their original packaging, and in a dry and odour-free 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 PSplus filter cartridges are monitored constantly to ensure consistently high quality. All BECO MEMBRAN PSplus filter cartridges are subjected to an integrity test during production.