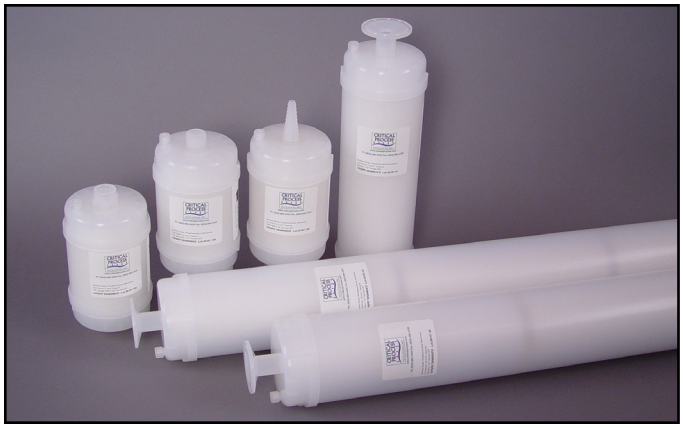
FPS Capsule Filters

Polyethersulfone Membrane

CRITICAL PROCESS FILTRATION, INC.



Excellent flow rates with precise retention ratings

Remove organic contaminants from wine, beer, bottled water

Protect processes by removing organic contaminants from water, CIP solutions

Low product adsorption to preserve flavor

Applications

- Wine
- Beer
- Juices
- Bottled Water
- Process Water
- Clean-in-Place Solutions
- Aseptically Packaged Liquids

FPS Capsules are hydrophilic and manufactured with the highest quality asymmetric polyethersulfone (PES) membrane. Polyethersulfone membrane exhibits excellent flow rates with precise retention ratings.

FPS capsule filters remove organic contaminants from beverages and process liquids. They are used for final filtration of wine, beer, bottled water and aseptically packaged products like juices. To protect processes, FPS capsules see service in removing organic and other contaminants from process water and clean-in-place solutions used in piping and other systems.

Polyethersulfone is particularly suited for the filtration of products that contain elements that can adsorb to the media, such as flavor elements and proteins. The lower binding characteristics of PES avoid adsorption and make it a good choice for filtration of beer and wine.

Food and Beverage Grade

FPS Capsule Filters - Filtration Area

Media	Capsule Length				
	2″	5″	10″	20″	30″
PES Membrane	1.0 ft^2 (930cm^2)	3.0 ft^2 (2788cm^2)	7.0 ft^2 (6503cm^2)	14.0 ft^2 (13006cm^2)	21.0 ft^2 (19509cm^2)

Flow Rate / Filtration Area

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 2 inch capsule with 1.0 ft^2 (930 cm^2) of media with 1/2″ FNPT ports. The test fluid is water at ambient temperature. Higher pressure drops are acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore Size	0.03 µm	0.10 µm	0.22 µm	0.45 µm	0.65 µm	0.80 µm	1.0 µm	1.2 µm
GPM	0.21	0.36	0.64	1.0	1.2	1.3	1.36	1.4
LPM	0.79	1.36	2.42	3.79	4.54	4.92	5.15	5.30

* For approximate flow rates for 5″ through 30″ capsules, refer to the appropriate cartridge data sheet

Construction Materials

Housing	Polypropylene
Filtration Media	Polyethersulfone (PES) Membrane
Media Support	Polypropylene
End Caps	Polypropylene
Center Core	Polypropylene
Outer Support Cage	Polypropylene
Sealing Method	Thermal Bonding

Maximum Operating Parameters

Liquid Operational Pressure	80 psi (5.5 bar) at 20 °C (68 °F)
Gases Operational Pressure	60 psi (4.1 bar) at 20 °C (68 °F)
Operating Temperature	43 °C (110 °F) at 30 psi (2.1 bar) in water
Forward Differential Pressure	50 psid (3.4 bard) at 20 °C (68 °F)
Reverse Differential Pressure	40 psid (2.7 bard) at 20 °C (68 °F)
Recommended Changeout Pressure	35 psid (2.4 bard)

Integrity Test Specifications

Pore Size	Test Pressure (psi)	Max Diffusion Rate (cc/min -water wetted membrane)				
		2"	5"	10"	20"	30"
0.03	60	4.3	12.9	30	60	90
0.10	48	4.3	12.9	30	60	90
0.22	35	4.3	12.9	30	60	90
0.45	20	4.3	12.9	30	60	90
0.65	15	4.3	12.9	30	60	90
0.8	12	4.3	12.9	30	60	90
1.0	8	4.3	12.9	30	60	90
1.2	7	4.3	12.9	30	60	90

Sanitization/Sterilization

Autoclave..... 250° F (121° C), 30 min, multiple cycles
Chemical Sanitization ..... Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals.
Note .....FPS capsules are not to be used in steam.

FDA and EC Compliance

All Critical Process Filtration capsule filters are designed to meet the FDA requirements for processing food and beverage products. The materials used to construct food & beverage grade filters are listed by the FDA as appropriate for use in articles intended for repeated food contact as specified in Title 21 CFR sections 174.5, 177.1500, 177.1520, 177.1630, 177.2440 and 177.2600 as appropriate. Membrane filters comply with Title 21 CFR sections 210.3 (b)(6) and 211.72, for non-fiber releasing filters All materials used to make the filters are listed in European Commission Regulation EU/10/2011, Annex 1.

Extractables

Food & beverage grade filters typically exhibit low levels of non-volatile residues.

Validation

FPS capsule filters are validated using test procedures based on ASTM Method F838-05 and HIMA protocols. The challenge level is 10^7 organisms per cm^2 of filter media:

0.10 µm challenged with *Acholeplasma laidlawii*;
0.22 µm challenged with *Brevundimonas diminuta*;
0.45 µm challenged with *Serratia marcescens*;
0.65 µm challenged with *Saccharomyces cerevisiae*.

Quality Assurance and Standards

Critical Process Filtration uses state of the art computer controlled equipment to consistently produce high quality products as well as significantly reduce hand operations that can compromise quality. All manufacturing and testing is continuously monitored in real time so that data can be quickly and easily analyzed to facilitate improvements in both quality and cost.

The Critical Process Filtration manufacturing and quality systems meet rigorous ISO 9001:2008 standards. Each operation, including assembly, testing, cleaning, drying and packaging, is done in an appropriately rated clean room. Manufacturing is controlled using a sophisticated manufacturing system that networks work stations, manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected in real time to allow continuous quality monitoring and full traceability of all materials and processes.

Each capsule filter assembly is integrity tested before release.

Total Performance

Critical Process Filtration, Inc. is a vertically integrated manufacturer of filtration products to industries in which filtration is considered a critical part of the manufacturing process. We supply a complete line of products and services to help you cost effectively satisfy all your filtration requirements from a single source.

Ordering Information

Capsule order number example: Food & Beverage Grade PES Membrane, 0.22 Micron Rating, Non-Sterile, 10" Length, Sanitary Inlet, Sanitary Outlet = CPFPS-20N0001FF.

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Micron Rating
-03 - .03 **-60** - .65
-10 - .10 **-80** - .80
-20 - .22 **1-0** - 1.0
-40 - .45 **1-2** - 1.2

N - Non-Sterile

Length
A - 2"
B - 5"
1 - 10"
2 - 20"
3 - 30"

Inlet
A - 1/4" Female NPT
B - 1/4" Male NPT
C - 3/8" Female NPT
D - 1/2" Female NPT
E - 1/2" Male NPT
F - Sanitary
G - Hose Barb*

Outlet
A - 1/4" Female NPT
B - 1/4" Male NPT
C - 3/8" Female NPT
D - 1/2" Female NPT
E - 1/2" Male NPT
F - Sanitary
G - Hose Barb*

Hose Barb Diameter Ranges*

	Minimum	Maximum
Outer Diameters	11/32" (8.6mm)	9/16" (14.0mm)
Inner Diameters	5/32" (4.0mm)	13/32" (10.5mm)

Request a **QUOTE** from your area representative

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