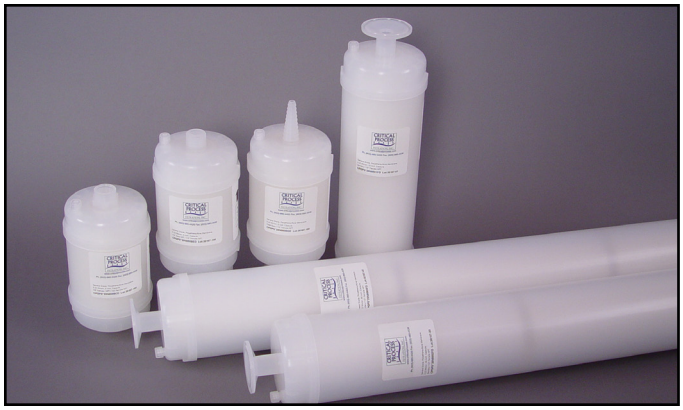
PPM Capsule Filters

Polypropylene Membrane

CRITICAL PROCESS FILTRATION, INC.

Pharmaceutical Grade



Optimized for maximum filter life

Designed for final filtration of compressed air and process gases

Vent filtration for the protection of tank contents

Final filtration of solvents, alcohols and other non-aqueous liquids

Applications

- Solvents
- Bulk Pharmaceutical Chemicals
- Tank Vent Filtration
- Gases
- Compressed Air

PPM capsules are manufactured for the needs of the pharmaceutical industry. Made with inherently hydrophobic polypropylene membrane, these cartridges are designed for use in the filtration of non-aqueous liquids, and as compressed gas and vent filters. Each cartridge module is individually integrity tested using the water intrusion method before it is released from manufacture.

The capsule media surface area, filter core design, pleat configuration and pleat packing density have been optimized to provide increased life resulting in lower filtration operating costs.

Specific applications for PPM capsule filters include final filtration of solvents and alcohols, final filtration of compressed air and process gas, and sterile vent filtration to prevent contaminants from reaching critical ingredients in tanks.

PPM Capsule Filters - Filtration Area

Media	Capsule Length				
	2″	5″	10″	20″	30″
Polypropylene 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 air and 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 fluids are water or compressed air at ambient temperature. Higher pressure drops are acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Air/Gas Flow Rates			Liquid Flow Rates		
µm Rating	0.10 µm	0.22 µm	**µm Rating**	0.10 µm	0.22 µm
SCFM	3.0	4.3	**GPM**	0.11	0.39
			LPM	0.42	1.48

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

Construction Materials

Housing	Polypropylene
Filtration Media	Polypropylene 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 - 60/40 IPA/water wetted membrane)				
		2"	5"	10"	20"	30"
0.10	48	4.3	12.9	30	60	90
0.22	35	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..... PPM capsules are not to be used in steam.

USP Biosafety and FDA Compliance

The materials used to construct PPM capsule filters are non-toxic and meet the requirements for the MEM Elution Cytotoxicity Test and the requirements for Biological Reactivity Tests in the current version of the United States Pharmacopeia (USP) for Class VI - 121 °C Plastics. In addition, the materials meet the requirements 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. PPM capsule filters comply with Title 21 CFR sections 210.3 (b)(6) and 211.72, for non-fiber releasing filters. The levels of bacterial endotoxins in aqueous extracts from pharmaceutical grade PM capsule filters are below current USP limits as specified for water for injection.

Extractables

Pharmaceutical grade filters typically exhibit low levels of non-volatile residues.

Ordering Information

Capsule order number example: Pharmaceutical Grade Polypropylene Membrane, 0.22 Micron Rating, Non-Sterile, 10" Length, Sanitary Inlet, Sanitary Outlet = CPPPM-20N0001FF.

Validation

Pharmaceutical Grade PPM capsules 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:

0.22 µm challenged with *Brevundimonas diminuta*;

Critical Process Filtration can provide validation assistance.

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 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.

CP PPM [ ] N 000 [ ] [ ] [ ]

Micron Rating
-10 - .10 **-20** - .22

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*

Request a **QUOTE** from your area representative

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)

CRITICAL PROCESS FILTRATION, INC.

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