

BIO-PRO

Filtration For Bioprocessing



DESCRIPTION

Purolator's **BIO-PRO** Capsule-Clear PES filters are manufactured with advanced asymmetric hydrophilic polyethersulfone membrane (PES). PES provides sharp particle cut offs and is compatible with a broad range of chemicals and pH extremes. The filters are intended for applications where bacterial retention and high flow rates are required as well as full material traceability. The capsules are offered with single or double layer membrane. There are 20 standard end fitting types to choose from, including quick disconnects.

FEATURES AND BENEFITS

- Available fitting connections include hose barb, NPT, tri clamp, compression, luer lock, quick coupling, and filling bell.
- All materials of construction meet the requirements of USP Biological Test for Plastics, Class VI, 121 °C and meet the FDA requirements for food contact use as detailed in 21 CFR.
- The 0.2 µm filter demonstrates quantitative retention of $\geq 10^7$ CFU/cm² of *Brevundimonas diminuta* ATCC 19146 in accordance with ASTM F838-05.
- Capsule filters are assembled at an ISO 9001 Facility in a Class 10,000 clean room.
- Filters are rinsed with USP grade water, integrity tested by diffusional flow, lot tested by bubble point, and LAL tested (<0.25 EU/mL).

Capsule-Clear PES

Microbial Grade PES Membrane Filter Capsules

MATERIALS OF CONSTRUCTION

Membrane	Polyethersulfone
Membrane Supports	Polypropylene
Capsule, Core	Polypropylene
Inlet, Outlet	Polypropylene
Sealing Method	Thermal Bonding

OPERATING CONDITIONS

Maximum Operating Temperature	176 °F (80 °C)
Maximum Forward Differential Pressure	73 psid (5.0 bar) 68 °F (20 °C)
Maximum Forward Differential Pressure	36 psid (2.5 bar) 122 °F (50 °C)
Maximum Forward Differential Pressure	17 psid (1.2 bar) 176 °F (80 °C)
Maximum Reverse Differential Pressure	44 psid (3.0 bar) 68 °F (20 °C)

INTEGRITY

Bubble Point:

WSM001M1	0.1 µm \geq 23 psig (IPA)
WSM002M1	0.2 µm \geq 50 psig (H ₂ O)
WSM004M1	0.45 µm \geq 33 psig (H ₂ O)
WSM006M1	0.65 µm \geq 18 psig (H ₂ O)
WSM008M1	0.8 µm \geq 13 psig (H ₂ O)
WSM062M2	0.6/0.2 µm \geq 50 psig (H ₂ O)
WSM084M2	0.8/0.4 µm \geq 33 psig (H ₂ O)

Air Diffusion Per Minute:	Size 1	Size 2	Size 3	Size 4
WSM001M1 at 40 psig (H ₂ O)	3 mL	6 mL	12 mL	24 mL
WSM002M1 at 36 psig	3 mL	6 mL	12 mL	24 mL
WSM004M1 at 24 psig	3 mL	6 mL	12 mL	24 mL
WSM006M1 at 14 psig	3 mL	6 mL	12 mL	24 mL
WSM008M1 at 10 psig	3 mL	6 mL	12 mL	24 mL
WSM062M2 at 36 psig	3 mL	6 mL	12 mL	24 mL
WSM084M2 at 24 psig	3 mL	6 mL	12 mL	24 mL

STERILIZATION

Autoclave 60 Minutes, 259 °F (126 °C), up to 6x

Gamma Irradiation Capsules will withstand irradiation to 45 kGy


FLOW RATE

Single Layer Capsules:	Size 1 (720 cm ²)	Size 2 (1,380 cm ²)	Size 3 (2,600 cm ²)	Size 4 (5,200 cm ²)
WSM001M1 with 1.5" Tri Clamps	2.83 lpm/5 psid	5.29 lpm/5 psid	9.07 lpm/5 psid	17.0 lpm/5 psid
WSM002M1 with 1.5" Tri Clamps	4.72 lpm/5 psid	8.50 lpm/5 psid	13.23 lpm/5 psid	22.0 lpm/5 psid
WSM004M1 with 1.5" Tri Clamps	2.65 lpm/2 psid	7.56 lpm/2 psid	13.23 lpm/2 psid	22.0 lpm/2 psid
WSM006M1 with 1.5" Tri Clamps	11.34 lpm/3 psid	15.12 lpm/3 psid	15.12 lpm/1 psid	30.0 lpm/1 psid
WSM008M1 with 1.5" Tri Clamps	11.34 lpm/2 psid	15.12 lpm/2 psid	15.12 lpm/1 psid	37.8 lpm/1 psid
Double Layer Capsules:	Size 1 (650 cm ²)	Size 2 (1,260 cm ²)	Size 3 (2,430 cm ²)	Size 4 (4,860 cm ²)
WSM062M2 with 1.5" Tri Clamps	4.72 lpm/5 psid	8.50 lpm/5 psid	13.23 lpm/5 psid	22.0 lpm/5 psid
WSM084M2 with 1.5" Tri Clamps	2.65 lpm/2 psid	7.56 lpm/2 psid	13.23 lpm/2 psid	22.0 lpm/2 psid

CAPSULE SELECTION GUIDE



W	S	M	O	O	I	M	I	I	A	A
Style	Media		Grade		Series	Layer	EFA	Inlet	Outlet	
W = Capsule	SM = PES		001 = 0.1 µm	002 = 0.2 µm	M = Microbial	1 = Single	1 = 720 cm ²	A = ¼" to ⅜" HB	A = ¼" to ⅜" HB	
			004 = 0.45 µm	006 = 0.65 µm	MG = Gamma Stable	2 = Double	2 = 1,380 cm ²	B = ½" HB	B = ½" HB	
			008 = 0.8 µm	062 = 0.6/0.2 µm			3 = 2,600 cm ²	C = ¼" MNPT	C = ¼" MNPT	
			084 = 0.8/0.4 µm				4 = 5,200 cm ²	D = ¼" FNPT	D = ¼" FNPT	
								E = 1 ½" T.C.	E = 1 ½" T.C.	
								F = ⅛" HB	F = ⅛" HB	
								G = ⅜" HB	G = ⅜" HB	
								H = ⅛" FNPT	H = ⅛" FNPT	
								I = ½" MNPT	I = ½" MNPT	
								J = ⅜" FNPT	J = ⅜" FNPT	
								K = ¼" Compression	K = ¼" Compression	
								L = ⅜" Compression	L = ⅜" Compression	
								M = ½" Compression	M = ½" Compression	
								N = Large F Luer	N = Large F Luer	
								O = ½" T.C.	O = ½" T.C.	
								P = ⅛" Q.C. F M.L.	P = ⅛" Q.C. F M.L.	
								Q = ¼" Q.C. M for M.L.	Q = ¼" Q.C. M for M.L.	
								R = ¼" Q.C. F M.L.	R = ¼" Q.C. F M.L.	
								T = ½" Q.C. M for M.L.	T = ½" Q.C. M for M.L.	
								GV = ⅜" HB + Filling Bell	GV = ⅜" HB + Filling Bell	

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