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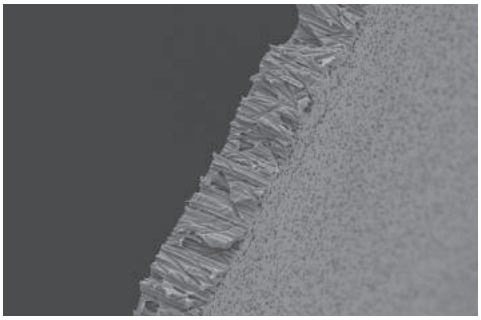
PORETICS PCTE Membrane

3.1.10 - Polycarbonate Track Etched (PCTE) Membrane



Description and Use

GVS Life Sciences PCTE Membrane is made from a thin, microporous polycarbonate film material. It is ideally suited for use in blood assays and high-purity and general filtration. Though polycarbonate is hydrophobic, the membrane is treated with a wetting agent to make it hydrophilic.

Typical Applications

- General filtration
- Removal of red blood cells from plasma
- Flow control of reagents through assay
- Precise filtration and prefiltration

Features and Benefits

- **Absolute pore size and density:** Provides flow control for liquids moving through the membrane capturing 100 percent of cells larger than pore size
- **Smooth, thin, glass-like surface:** Planar surface makes it ideal for particle identification by microscopy
- **Superior strength:** Tensile strength of 207 bar (> 3000 psi) maintains pore size and density, and will not stretch
- **Low extractables:** Ensures tests will be clean promoting consistent results
- **Low protein binding:** Low binding of < 5 μg/cm^2 minimizes loss of protein analytes
- **Negligible absorption/adsorption:** Maximizes critical solution recovery
- **Available as hydrophilic or hydrophobic:** Allows for a wide range of product applications

Table 1: Product Characteristics

Sterilization	Gamma Irradiation or Ethylene Oxide (EtO)
USP Class VI Testing	Passed
Extractables	Very Low
BSA Protein Binding	5 μg/cm^2
Maximum Operating Temperature	284°F (140°C)
Sealing Compatibility	Ultrasonic, Heat, Radio Frequency and Insert Molding
Pore Size Range	0.1 to 20 μm

Table 2: Nominal Product Characteristics

Thickness	5 - 20 μm
Refractive Indices	Birefringent at 1.584 and 1.625
Water Adsorption (% wt. gain 24-hr immersion)	0.24%
Residual Ash Weight Average	0.92 μg/cm^2
Specific Gravity	0.94-0.97
Autoclavable	Yes
Leachables	Negligible
Wetting Characteristics	Hydrophilic or Hydrophobic
Wetting Agent (hydrophilic)	Polyvinylpyrrolidone (PVP)
Burst Strength Minimum	0.7 bar (10 psi)
Migration of Filter Media	0
Optical Properties	Semi-translucent

Table 3: Performance Characteristics

Pore Size (a) (μm)	Pore Density (b) (pores/cm^2)	Nominal Thickness (c) (μm)	Min. Bubble Point (d) (psi)	Typical Flow Rates	
				Water (e) (mL/min/cm^2)	Air (L/min/cm^2)
20	4 x 10^4	3	1	1000	11 (g)
14	5 x 10^4	6	0.2	1400	63.5 (g)
12	1 x 10^5	8	0.4	1250	63.5 (g)
10	1 x 10^5	10	0.5	1150	34.5 (g)
8	1 x 10^5	7	0.7	1000	30 (g)
5	4 x 10^5	10	1.2	700	30 (g)
3	2 x 10^6	9	2	440	37.5 (g)
2	2 x 10^6	10	3	300	16.5 (f)
1	2 x 10^7	11	6	130	20 (f)
0.8	3 x 10^7	9	7	90	18 (f)
0.6	3 x 10^7	9	9	60	7.5 (f)
0.4	1 x 10^8	10	12	33	7.5 (f)
0.2	3 x 10^8	10	20	10	3 (f)
0.1	4 x 10^8	6	30	2.5	1.5 (f)
0.08	4 x 10^8	6	38	0.6	0.75 (f)
0.05	6 x 10^8	6	50	0.4	0.37 (f)
0.03	6 x 10^8	6	NA	0.2	0.075 (f)
0.01	6 x 10^8	6	NA	0.1	0.0075 (f)

(a) Tolerance + 0%, -20%
(b) Tolerance + / - 15%
(c) Tolerance + / - 10%
(d) Measured using Isopropanol (IPA)
(e) Initial flow rates using prefiltered water at 10 psid (0.7 kg/cm^2)
(f) Initial flow rates using prefiltered air at 10 psid (0.7 kg/cm^2)
(g) Initial flow rates using prefiltered air at 5 psi (0.35 kg/cm^2)