**Absolute, Cost-Effective Filtration From All-Polypropylene Cartridges**

Parker’s Fulflo® Abso-Mate® Cartridges provide the ultimate in economical filtration for even the most critical process fluids. The proprietary melt blown media are rigidly controlled for reliable results time after time. Abso-Mate cartridges are produced without adhesives that can potentially contaminate fluids.

Abso-Mate Pleated Cartridges are available in 0.2µm, 0.45µm, 1µm, 2µm, 5µm, 10µm, 20µm, 40µm and 70µm absolute rated pore sizes.

**Applications**
- Electronics
- Membrane Prefilter
- Food & Beverage
- Pharmaceuticals
- Water
- Chemicals
- Precious Metal Recovery
- Catalyst Recovery
- Waste Water

**Features and Benefits**
- Absolute ratings for consistent and reliable performance (99.98%; β = 5000).
- Backwashable media, reduces replacement maintenance and cartridge disposal costs. See page 4 for procedure.
- Abso-Mate cartridges are non-fiber releasing and contain minimal extractables.
- All materials of construction are FDA listed as acceptable for potable and edible liquid contact according to CFR Title 21.
- One-piece construction eliminates bypass concerns on multilength cartridges.
- All-polypropylene construction offers wide chemical compatibility with most chemicals, acids, bases and solvents.
- Fused construction and continuous lengths eliminate the need for adhesives and allow accurate bubble point integrity testing.
Fulfo® Abso-Mate® Filter Cartridges offer high efficiency, high purity, high flow rate capability and long service life. Abso-Mate extractable levels in water are less than 0.001% by weight. The result is a line of cartridges with broad particle removal ratings that meet critical filtration requirements.

Abso-Mate cartridges make an ideal membrane prefilter and serve as a cost-effective alternative to membrane filters in many applications. The unique construction allows for backwash cleaning that extends service life and reduces handling and disposal costs. Abso-Mate cartridges can be incinerated, significantly reducing hazardous material disposal costs.

### Specifications

**Absolute Filtration Ratings:**
- 99.98% removal efficiency at 0.2µm, 0.45µm, 1µm, 2µm, 5µm, 10µm, 20µm, 40µm and 70µm pore sizes

**Effective Filtration Area:**
- Up to 7.2 ft²/10 in (0.7 m²/254 mm)

**Materials of Construction:**
- Filter Media and Support Layers: polypropylene
- Bonding Polymer: none, completely fusion-sealed
- Surface Treatment: none, chemically inert and neutral
- Media Protection: polypropylene cage
- Support Core: glass-filled polypropylene
- Pleat Pack Side Seal: fused polypropylene
- End Caps: polypropylene
- Seals: Buna-N, EPR, silicone, Viton®, Teflon® encapsulated Viton®
- O-rings, polyethylene foam gaskets

**Recommended Operating Conditions:**
- Change Out ΔP: 35 psi (2.4 bar)
- Maximum Temperature: 200°F (93°C)
- Maximum Temperature @ 35 psid (2.4 bar): 200°F (93°C)
- Maximum ΔP @ 70°F (21°C): 90 psid (6 bar)
- Maximum ΔP @ 200°F (93°C): 35 psid (2.4 bar)

**Dimensions:**
- Overall Length: See catalog sheet C-2090. SOE fits standard housings with O-ring seals.
- Cartridge Outside Diameter: 2-1/2 in (63.5 mm)
- Cartridge Inside Diameter: DOE - 1-1/16 in (27 mm)
- SOE - 1 in (25.4 mm)

**Biological Safety:**
- Meets USP XXI Class VI requirements for plastics
- Nontoxic per WI-38 Human Cell Cytotoxicity Test

**Product Purity:**
- All components FDA acceptable per 21 CFR, Section 177-1520
- Non-fiber releasing per FDA Part 210.3B (5) and (6). Refer to TAP-004
- Water Extractables: < 0.001% by weight per USP XXI Physico-Chemical Test Procedures
- Non-photosensitive
- Low Total Organic Carbon (TOC) extractables. Refer to TAP-003 (Contact Parker for TAP-003)

**Sterilization Parameters:**
- Maximum 10 cycles @ 250°F (121°C) for 15 minutes @ 15 psi (1.03 bar)
- Hot water @180°F (82°C) for 30 minutes

**Deionized Water Rinse-Up Properties:**
- Refer to TAP-002 (Contact Parker for TAP-002)

### Ultimate Pleated Cartridge Performance

Fulfo® Abso-Mate® Filter Cartridges are designed for high efficiency, high purity, and high flow rate capability. They offer a long service life and are ideal for membrane prefiltration. These cartridges are cost-effective alternatives to membrane filters in various applications. Their unique construction enables backwash cleaning, extending service life and reducing handling and disposal costs. They can also be incinerated, significantly reducing hazardous material disposal costs.

**Specifications**

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**Table: Liquid Particle Retention Ratings (µm) @ Removal Efficiency of:**

<table>
<thead>
<tr>
<th>Cartridge</th>
<th>B=5000 Absolute</th>
<th>B=1000 99.9%</th>
<th>B=100 99%</th>
<th>B=50 98%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A PAB002</td>
<td>0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>B PAB004</td>
<td>0.45</td>
<td>0.4</td>
<td>0.2</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>C PAB010</td>
<td>1</td>
<td>0.8</td>
<td>0.4</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>D PAB020</td>
<td>2</td>
<td>1.9</td>
<td>0.8</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>E PAB050</td>
<td>5</td>
<td>3.8</td>
<td>1.4</td>
<td>0.4</td>
</tr>
<tr>
<td>F PAB100</td>
<td>10</td>
<td>7</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>G PAB200</td>
<td>20</td>
<td>13</td>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td>H PAB400</td>
<td>40</td>
<td>22</td>
<td>7</td>
<td>3.2</td>
</tr>
<tr>
<td>J PAB700</td>
<td>70</td>
<td>52</td>
<td>22</td>
<td>15</td>
</tr>
</tbody>
</table>

* A trademark of E. I. du Pont de Nemours & Co.
**Performance Profile**

Parker’s Process Filtration Division test procedures address the varying filtration requirements of customers. Selection of media of the Fulflo® Abso-Mate™ product line maximizes performance in terms of efficiency, dirt-holding capacity, flow and other characterization variables. Tests and analyses were conducted using microprocessor technology.

**High Filtration Efficiency**

Filtration efficiency is affected by media pore size and fluid velocity. The removal efficiency is based on a design flow rate of 2.5 gpm per 10 in (9.5 lpm per 254 mm) cartridge. Lower flow rates yield higher efficiencies and higher flow rates result in lower efficiencies.

**Test Conditions**

**Liquid Service:** Particle removal efficiencies were determined by challenging cartridges with aqueous dispersions of industry standard contaminants at a constant flow rate until a \( \Delta P \) of 35 psi (2.4 bar) was reached. Removal efficiencies at 16 different particle sizes are measured over the entire life of the cartridge using an electronic particle counter. Performance validation of sub-micron rated media is based on a variety of bacterial challenge tests. Consult the Process Filtration Division for specific test data.

**Gas Service:** Removal efficiencies for gas are determined using Mil-Std 282. This procedure challenges the media with thermally generated DOP (dioctylphthalate) smoke (0.3µm dispersion in air) at a flow rate of 3.2 cfm through a 10 in cartridge.

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**Abso-Mate Particle Removal Efficiency Over Life**

<table>
<thead>
<tr>
<th>Particle Size (µm)</th>
<th>Percent Removal Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>99.99%</td>
</tr>
<tr>
<td>0.2</td>
<td>99.98%</td>
</tr>
<tr>
<td>0.5</td>
<td>99.95%</td>
</tr>
<tr>
<td>1</td>
<td>99.9%</td>
</tr>
<tr>
<td>2</td>
<td>99.6%</td>
</tr>
<tr>
<td>5</td>
<td>99.5%</td>
</tr>
<tr>
<td>10</td>
<td>99.0%</td>
</tr>
<tr>
<td>20</td>
<td>95%</td>
</tr>
<tr>
<td>50</td>
<td>90%</td>
</tr>
<tr>
<td>100</td>
<td>90%</td>
</tr>
</tbody>
</table>

**Abso-Mate Length Factors**

<table>
<thead>
<tr>
<th>Length (in)</th>
<th>Length Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>1.0</td>
</tr>
<tr>
<td>10</td>
<td>1.0</td>
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<tr>
<td>19</td>
<td>2.0</td>
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<tr>
<td>20</td>
<td>2.0</td>
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<td>29</td>
<td>3.0</td>
</tr>
<tr>
<td>30</td>
<td>3.0</td>
</tr>
<tr>
<td>40</td>
<td>4.0</td>
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</tbody>
</table>

**Abso-Mate Cartridge Flow Factors (psid/gpm @ 1 cks)**

<table>
<thead>
<tr>
<th>Rating (µm)</th>
<th>Flow Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>1.900</td>
</tr>
<tr>
<td>0.45</td>
<td>1.000</td>
</tr>
<tr>
<td>1</td>
<td>0.750</td>
</tr>
<tr>
<td>2</td>
<td>0.500</td>
</tr>
<tr>
<td>5</td>
<td>0.133</td>
</tr>
<tr>
<td>10</td>
<td>0.027</td>
</tr>
<tr>
<td>20</td>
<td>0.020</td>
</tr>
<tr>
<td>40</td>
<td>0.012</td>
</tr>
<tr>
<td>70</td>
<td>0.008</td>
</tr>
</tbody>
</table>

**Flow Rate and Pressure Drop Formulas:**

\[
\text{Flow Rate (gpm)} = \frac{\text{Clean } \Delta P \times \text{Length Factor}}{\text{Viscosity} \times \text{Flow Factor}}
\]

\[
\text{Clean } \Delta P = \frac{\text{Flow Rate} \times \text{Viscosity} \times \text{Flow Factor}}{\text{Length Factor}}
\]

**Notes:**

1. **Clean } \Delta P** is PSI differential at start.
2. **Viscosity** is centistokes. Use Conversion Tables for other units.
3. **Flow Factor** is \( \Delta P/\text{GPM} \) at 1 cks for 10 in (or single).
4. **Length Factors** convert flow or \( \Delta P \) from 10 in (single length) to required cartridge length.

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Performance determined per ASTM F-795-88. Single-Pass Test using AC test dust in water at a flow rate of 2.5 gpm per 10 in (9.5 lpm per 254 mm).
**Backwash Protocol**

Since applications vary, rigid rules for backwash operation are impossible. Please use these guidelines:

- Initiate a backwash cycle when the pressure drop rises about 3-4 psid (0.2 to 0.3 bar) above the initial value (1-5 psid [0.1 to 0.4 bar] for most systems) or alternately on a timed cycle, e.g., daily.
- Stop the process flow by closing valves 1 and 2.
- Begin backwash flow by opening valves 3 and 4.
- Backwash pressure should be about 10 psi (0.7 bar) greater than the existing pressure drop.
- A momentary pressure surge is beneficial in breaking particles free.
- Backwash flow rate is critical. It should be 1 to 1-1/2 times the process flow rate. Allow sufficient time to flush the contaminant from the housing.
- Close valves 3 and 4 and open valves 1 and 2 to resume normal filtration. Vent the housing. Note the decrease in pressure drop.
- Continue backwash cycles until the pressure drop no longer decreases. Change cartridges at about 35 psid (2.4 bar).
- Note: Valves 3 and 4 could be attached to the housing’s dirty and clean drains, respectively.

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**Ordering Information**

<table>
<thead>
<tr>
<th>PAB004</th>
<th>10</th>
<th>F</th>
<th>A</th>
<th>DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating (µm)</td>
<td>Nominal Length</td>
<td>Core</td>
<td>Seal Options</td>
<td>End Cap Options</td>
</tr>
<tr>
<td>002 - 0.2</td>
<td>9, 9-5/8, 244</td>
<td>Glass-Filled Polypropylene</td>
<td>E = EPR O-Ring</td>
<td>DO = Double Open End (DOE)</td>
</tr>
<tr>
<td>004 - 0.45</td>
<td>10, 10, 249</td>
<td></td>
<td>N = Buna-N O-Ring</td>
<td>DX = DOE With Core Extender</td>
</tr>
<tr>
<td>010 - 1</td>
<td>19, 19-5/8, 498</td>
<td></td>
<td>S = Silicone O-Ring</td>
<td>SC = 226 O-Ring/Fin</td>
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<tr>
<td>020 - 2</td>
<td>20, 20, 506</td>
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<td>V = Viton* O-Ring</td>
<td>SF = 226 O-Ring/Fin</td>
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<tr>
<td>050 - 5</td>
<td>29, 29-1/4, 743</td>
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<td>T = Teflon* Encapsulated Viton* O-Ring</td>
<td>TC = 226 O-Ring/Fin</td>
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<tr>
<td>100 - 10</td>
<td>30, 30, 764</td>
<td></td>
<td>A = Polyethylene Foam Gasket (DO &amp; DX)</td>
<td>TF = 226 O-Ring/Fin</td>
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<tr>
<td>200 - 20</td>
<td>40, 40, 1016</td>
<td></td>
<td></td>
<td>AC = 020 O-Ring/Fin</td>
</tr>
</tbody>
</table>

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