



# FILMTEC™ Membranes

## NF Elements Available for Pilot Testing

For pilot testing, the following Nanofiltration elements are available.

Product	Application
NF200	Medium to high salt passage, medium calcium passage (50-65%), high atrazine rejection (95%), and high TOC rejection.
NF270	High salt passage, medium calcium passage (40-60%), high TOC removal.
NF90	High salt removal (90%), high iron removal, pesticide, herbicide removal, and TOC removal.

## Product Specifications

Product	Nominal Active Surface Area ft <sup>2</sup> (m <sup>2</sup> )	GMID	Product Water gpd	Flow Rate l/h	Solute Passage (%)	Atrazine Passage (%)
NF200-2540	28 (2.6)	89592	CaCl <sub>2</sub>	550	86.7	50-65
			MgSO <sub>4</sub>	460	72.5	<3
NF200-4040	82 (7.6)	89198	CaCl <sub>2</sub>	1,600	252.3	50-65
			MgSO <sub>4</sub>	1,350	212.9	<3
NF270-2540	28 (2.6)	149986	CaCl <sub>2</sub>	1,000	157.7	40-60
			MgSO <sub>4</sub>	850	134	<3
NF270-4040	82 (7.6)	149987	CaCl <sub>2</sub>	2,925	461.3	40-60
			MgSO <sub>4</sub>	2,500	394.3	<3
NF90-2540	28 (2.6)	149982	NaCl	525	82.8	5-15
			MgSO <sub>4</sub>	600	94.6	<3
NF90-4040	82 (7.6)	149983	NaCl	1,400	220.8	5-15
			MgSO <sub>4</sub>	1,850	291.7	<3

- Permeate flow and salt rejection based on the following test conditions:  
500 ppm CaCl<sub>2</sub>, 70 psi (0.5 MPa), 77°F (25°C), and 15% recovery.  
2000 ppm MgSO<sub>4</sub>, 70 psi (0.5 MPa), 77°F (25°C), and recovery as indicated below.  
2000 ppm NaCl, 70 psi (0.5 MPa), 77°F (25°C), and recovery as indicated below.
- Flow rates for individual elements may vary ±25%.

## Operating Limits

Membrane Type	Polyamide Thin-Film Composite
Maximum Operating Pressure	600 psig (41 bar)
Maximum Operating Temperature	104°F (40°C)
Free Chlorine Tolerance <sup>a</sup>	<0.1 ppm
pH Range, Continuous Operation <sup>b</sup>	2–11
pH Range, Short-Term Cleaning (30 min.) <sup>c</sup>	1–12
Maximum Feed Flow	
2540	6 gpm (1.4 m <sup>3</sup> /h)
4040	16 gpm (3.6 m <sup>3</sup> /h)
Maximum Feed Silt Density Index	SDI 5

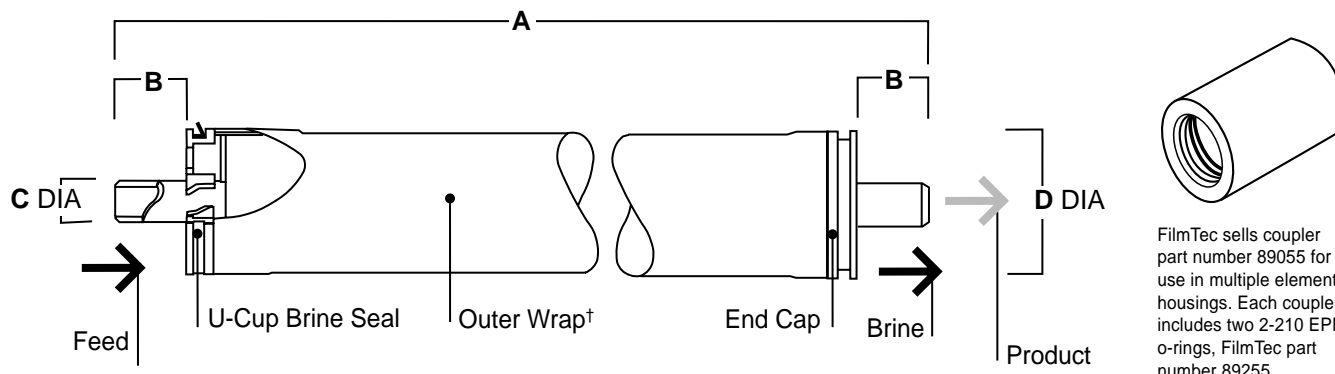
<sup>a</sup> Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, FilmTec recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to technical bulletin 609-22010/CH 172-144-E for more information.

<sup>b</sup> Maximum temperature for continuous operation above pH 10 is 95°F (35°C).

<sup>c</sup> Refer to Cleaning Guidelines in specification sheet 609-23010/CH 172-086-E.

# FILMTEC Membranes

For more information about FILMTEC membranes, call the Dow Liquid Separations business:  
 North America . . . . . 1-800-447-4369  
 Latin America . . . . . (+55) 11-5188-9277  
 Europe . . . . . (+32) 3-450-2240  
 Japan . . . . . (+81) 3-5460-2100  
 Australia . . . . . (+61) 2-9776-3226  
<http://www.filmtec.com>



FilmTec sells coupler part number 89055 for use in multiple element housings. Each coupler includes two 2-210 EPR o-rings, FilmTec part number 89255.

Product	Single-Element Recovery	Dimensions – Inches (mm)			
		A	B	C	D
2540 Configuration <sup>5</sup>	15%	40 (1,016)	1.19 (30)	0.75 (19)	2.401 (61)
4040 Configuration <sup>6</sup>	15%	40 (1,016)	1.05 (27)	0.75 (19)	3.913 (99.4)

4. Consult the most recent DESIGN GUIDELINES for multiple-element applications and recommended element recovery rates for various feed sources. 1 inch = 25.4 mm  
 5. Element to fit 2.45-inch (62 mm) I.D. pressure vessel.  
 6. Element to fit 4.00-inch (102 mm) I.D. pressure vessel.  
<sup>†</sup>Tape for 2540 configuration and Fiberglass Outer Wrap for 4040 configuration.

### Important Operating Information

- Keep elements moist at all times after initial wetting.
- If operating specifications given in this Product Information bulletin are not strictly followed, the limited warranty will be null and void.
- Permeate obtained from first hour of operation should be discarded.
- To prevent biological growth during storage, shipping or system shutdowns it is recommended that elements be immersed in a protective solution. The standard storage solution contains 1.5 percent (by weight) sodium metabisulfite (food grade).
- Elements must be in use for at least six hours before formaldehyde is used as a biocide. If the elements are exposed to formaldehyde before being in use for this period of time, a loss in flux may result.

- The membrane shows some resistance to short-term attack by chlorine (hypochlorite). Continuous exposure, however, may damage the membrane and should be avoided.
- The customer is fully responsible for the effects of incompatible chemicals on elements. Their use will void the element limited warranty.

### Pricing:

All prices listed are in U.S. dollars and are subject to change without notice. Dow will issue the buyer a credit of 50% when test results are provided to Dow. Dow will issue an additional 50% credit when a commercial size (8040) installation is purchased. Offer is limited to 50 pieces of pilot test elements and 3 years from date of sale.

### Freight:

F.O.B. Minneapolis, MN. Buyer absorbs freight.

### Credit Terms:

Net 30 days. Subject to Terms and Conditions of Sale.

### Notice:

Interconnectors are included in the element price on this schedule. This price list supercedes all previous price lists. Pressure vessel adapters are the responsibility of the buyer.

### Warranty Terms:

These products are covered by a 12 month materials and workmanship warranty and a 3-year pro-rated warranty.

### GMID:

Dow Global Material Identification number (FilmTec part number).

**Notice:** For products that are "developmental": (1) quality specifications may not be fully determined; (2) hazards may not be fully known, and additional caution in handling and use is required; and (3) Seller reserves the right to change specifications and/or discontinue its sale. Users are cautioned to confirm opinions, findings and data by their tests and to satisfy themselves as to the suitability of such products for the purposes intended prior to use.

**Notice:** The use of this product in and of itself does not necessarily guarantee the removal of cysts and pathogens from water. Effective cyst and pathogen reduction is dependent on the complete system design and on the operation and maintenance of the system.

**Notice:** No freedom from any patent owned by Seller or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Seller assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

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