



# FilmTec™ Fortilife™ NF1000

High Productivity, Salt-Selective Nanofiltration Membrane Element for Water and Waste Reclamation

## **Key Features**

- High monovalent-divalent ion selectivity to enable the production of high purity salt solutions while reducing liquid volume to downstream thermal treatment.
- Expertly designed and optimized membrane chemistry to enable a reliable and robust element lifetime.
- High productivity membrane allows for increased water and resource recovery and/or reduced energy consumption.
- Reduced CAPEX/OPEX with increased active area compared to FilmTec™ Fortilife™ XC-N.

# **Key Applications**

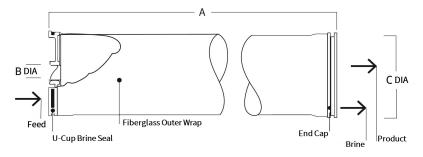
- Industrial Minimum- and Zero-Liquid Discharge (MLD/ZLD).
- Industrial resource recovery and recycling, such as in textiles, steel & metals, chemical & petrochemical.
- · Softening.
- Chloralkali processing.
- Landfill leachate (de-coloring).

## **Typical Properties**

| FilmTec™ Element  | Active Area                       | Feed Spacer Thickness | Permeate Flow Rate | Stabilized Salt Rejection | Minimum Salt Rejection |
|-------------------|-----------------------------------|-----------------------|--------------------|---------------------------|------------------------|
|                   | ft <sup>2</sup> (m <sup>2</sup> ) | (mil)                 | gpd (m³/d)         | (%)                       | (%)                    |
| Fortilife™ NF1000 | 400 (37)                          | 34                    | 9,025 (34)         | 99.2                      | 98.0                   |

- 1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm MgSO,, 70 psi (4.8 bar), 77°F (25°C), and 15% recovery.
- 2. Flow rates for individual elements may vary but will be no more than 15% below the value shown.
- 3. Sales specifications may vary as design revisions take place.

#### **Element Dimensions**





| FilmTec™ Element Fortilife™ NF1000<br>Dimensions – inches (mm) |               |  |  |  |
|--|---------------|--|--|--|
| А  | 40.0 (1,016)  |  |  |  |
| В  | 1.125 ID (29) |  |  |  |
| С  | 7.9 (201)     |  |  |  |

- 1. For element weight information refer to What is the weight of FilmTec™ elements as delivered?
- 2. For element packaging and shipping information refer to How are FilmTec™ elements packaged and shipped?

# **Suggested Operating Conditions**

| Membrane Type                              | Polypiperazine Thin-Film Composite |  |
|--|------------------------------------|--|
| Maximum Operating Temperature <sup>1</sup> | 113°F (45°C)                       |  |
| Maximum Operating Pressure                 | 600 psig (41 bar)                  |  |
| Maximum Pressure Drop                      |                                    |  |
| Per Element                                | 15 psig (1.0 bar)                  |  |
| Per Pressure Vessel (Minimum 4             | 50 psig (3.5 bar)                  |  |
| Elements)                                  |                                    |  |
| pH Range                                   |                                    |  |
| Continuous Operation <sup>1</sup>          | 3 - 10                             |  |
| Short-Term Cleaning (30 min.) <sup>2</sup> | 1 - 12                             |  |
| Maximum Feed Flow <sup>3</sup>             | 75 gpm (17 m³/hr)                  |  |
| Maximum Feed Silt Density Index            | SDI 5                              |  |
| Free Chlorine Tolerance <sup>4</sup>       | < 0.1 ppm                          |  |

- Maximum temperature for continuous operation above pH 10 is 95°F (35°C).
- 2. Refer to FilmTec™ Cleaning Guidelines (Form No. 45-D01696-en).
- For recommended feed and permeate flow rates, flux, and recovery for various feed sources, refer to FilmTec™ Design Guidelines for multiple-element systems of 8-inch elements (Form No. 45-D01695-en).
- Oxidation damage is not covered under warranty, DuPont recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to <u>Dechlorinating Feedwater</u> (Form No. 45-D01569-en) for more information.

#### **General Information**

- Keep elements moist at all times after initial wetting.
- For successful operation of Reverse Osmosis (RO) and Nanofiltration (NF) membrane systems, the operation must follow the guidelines provided in the <u>FilmTec™ Reverse</u> <u>Osmosis / Nanofiltration Elements Operation Excellence and</u> <u>Limiting Conditions Tech Fact (Form No. 45-D04388-en).</u>
- To prevent biological growth during prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution.
- The customer is fully responsible for the effects of incompatible chemicals and lubricants on elements.
- Avoid static permeate-side backpressure at all times.
- Permeate obtained from the first hour of operation should be discarded
- 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.

### Important Information

Please consider good operating practices for the optimal performance of the Reverse Osmosis membrane elements to assure damage free operation:

- Loading of Pressure Vessels Preparation & Element Loading (Form No. 45-D01602-en)
- 2. System Operation, including plant <u>Start-Up Sequence</u> (Form No. 45-D01609-en) and <u>RO & NF Systems Shutdown</u> (Form No. 45-D01613-en)
- 3. Handling, Preservation, and Storage (Form No. 45-D03716-en)

Full information of plant design, system operation, and troubleshooting is given in the FilmTec™ Reverse Osmosis Membranes Technical Manual (Form No. 45-D01504-en).

## **Regulatory Note**

This product may be subject to drinking water application restrictions in some countries; please check the application status before use and sale.



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