

FTS's **OsmoF<sub>2</sub>O™** sanitary full fit forward osmosis membrane elements are specifically designed for use in sanitary, food and beverage and medical applications. The membrane element with 45-mil medium feed spacer and open draw solution spacer for viscous draw solutions. This element can be used to concentrate non-pulpy citrus juice and dairy products with viscous proprietary blend draw solution meeting sanitary requirements with cleanable full-fit outer wrap.

The full-fit configuration minimizes stagnant areas and is an ideal choice for applications requiring a sanitary design. The sanitary product line has the same solids handling options with increased membrane area per element reducing cost and system footprint.

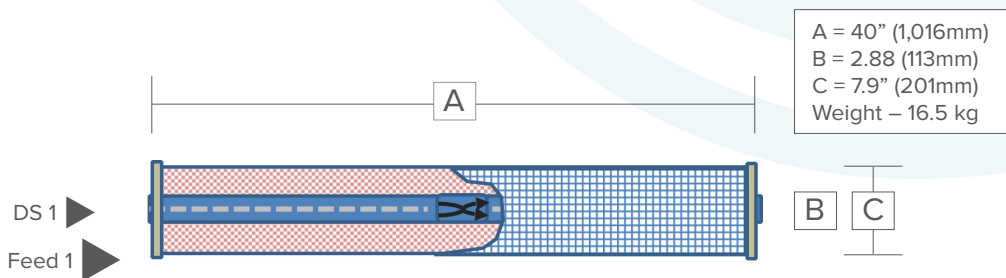
**Features and Benefits:**

- FTS's CTA membrane is fouling resistant and most chlorine resistant FO membrane
- Used with multiple element housings
- Feed spacer is a standard diamond-type (45-mil or 1.1-mm thick) to provide stable FO fluxes with feed solution free of suspended solids
- The VDS draw solution spacer (70-mil or 1.8-mm permeate spacer) allows a relatively high draw solution flowrate and/or viscous draw solutions
- Maintain freshness and flavors
- Low energy and operating costs by replacing thermal evaporators
- Green and environmental friendly technology



**Performance for Food and Beverage Applications (shown in diagram below):**

- Water Permeation: 250 gpd (1.0 m<sup>3</sup>/d)
- Active Area: 129 ft<sup>2</sup> (12.0 m<sup>2</sup>)
- Draw Solution Sugar Rejection: 99.9%
- Test Conditions:
  - Feed (side ports): 35 gpm (8.0 m<sup>3</sup>/h) 12° brix clarified juice at 77°F (25°C) and 15 psi (100 kPa) exit
  - Draw (end ports): 3.6 gpm (0.8 m<sup>3</sup>/h) 72° brix HFCS at 10 psi (70 kPa) feed
  - Rejection: typically, greater than 99.9% rejection of HFCS into food concentrate:  $\{1 - [(kg \text{ draw transferred to feed}) / (kg \text{ water removed})]\} * 100$



# OsmoF<sub>2</sub>O™ FO Sanitary Membrane

Model#: FO-8040-CTA-45-VDS-S

## Brief Operating Limits and Guidelines:

Membrane Requirements	Membrane must be kept moist at all times (do not allow to freeze).
Membrane Type	Cellulose Triacetate (CTA)
Max. Operating Temp.	150°F (60°C)
Max. Side-Port Pressure	75 psi (0.5 MPa)
Minimum Transmembrane Pressure(*)	5 psi (35 kPa)
pH Operating Range	3 to 7
Maximum Chlorine	2 ppm
Maximum Silt Density Index	application dependent (filtered juices and non-fat milk)
Maximum NTU	application dependent (filtered juices and non-fat milk)

(\*) Failure to maintain higher pressure on the side ports than the end ports can result in element seam failure, which is not covered under warranty after initial start-up.

## Membrane Configurations for different Applications

- FO-CTA-8040-85-S. For processing High Fouling liquids under sanitary conditions (such as concentrating tomato sauce).
- FO-CTA-8040-45-S. For processing Moderate Fouling liquids under sanitary conditions (such as concentrating non-fat milk).
- FO-CTA-8040-31-S. For processing Low Fouling liquids under sanitary conditions (such as clarified juices).
- FO-CTA-4040. Sanitary elements are the same as the 8040-S but instead of an eight-inch (203 mm) the diameter is 4-inch (102 mm). They are used for smaller volumes and specialty applications.