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OPERATION INSTRUCTIONS

**for reverse osmosis membrane elements of SNRO series,
nanofiltration elements of SNNF series,
and ultrafiltration elements of SNUF series**

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1 GENERAL PROVISIONS

1.1. This Technical Description and Operation Instructions apply to reverse osmosis membrane elements of SNRO series, nanofiltration elements of SNNF series, ultrafiltration elements of SNUF series in sanitary design manufactured in accordance with TU (technical requirements) 22.29.29-011-67318131-2017.

This Technical Description and Operation Instructions establish the rules of storage, installation and operation, compliance with which ensures that the membrane elements are always ready for operation.

1.2. Sanitary membrane elements are available in the following versions:

- Reverse osmosis membranes of SNRO series:

types 3838-31, 3838-34, 3838-46, 7838-31, 7838-34, 7838-46, 8038-31, 8038-34, 8038-46, 3838-31 PP, 3838-34 PP, 3838-46 PP, 7838-31 PP, 7838-34 PP, 7838-46 PP, 8038-31 PP, 8038-34 PP, 8038-46 PP.

- Nanofiltration membranes of SNNF series:

types 3838-31, 3838-34, 3838-46, 7838-31, 7838-34, 7838-46, 8038-31, 8038-34, 8038-46.

- Ultrafiltration membranes of SNUF series:

types 3838-10-31, 3838-20-31, 3838-50-31, 3838-10-46, 3838-20-46, 3838-50-46, 3838-10-65, 3838-20-65, 3838-50-65, 3838-10-80, 3838-20-80, 3838-50-80, 3838-10-31 PP, 3838-10-46 PP, 3838-10-65 PP, 3838-10-80 PP,

4336-10-31, 4336-10-46, 4336-10-65, 4336-10-80, 4336-10-31 PP, 4336-10-46 PP, 4336-10-65 PP, 4336-10-80 PP,

4338-10-31, 4338-10-46, 4338-10-65, 4338-10-80, 4338-10-31 PP, 4338-10-46 PP, 4338-10-65 PP, 4338-10-80 PP,

6338-10-31, 6338-20-31, 6338-50-31, 6338-10-46, 6338-20-46, 6338-50-46, 6338-10-65, 6338-20-65, 6338-50-65, 6338-10-80, 6338-20-80, 6338-50-80, 6338-10-31 PP, 6338-10-46 PP, 6338-10-65 PP, 6338-10-80 PP,

6438-10-31, 6438-20-31, 6438-50-31, 6438-10-46, 6438-20-46, 6438-50-46, 6438-10-65, 6438-20-65, 6438-50-65, 6438-10-80, 6438-20-80, 6438-50-80, 6438-10-31 PP, 6438-10-46 PP, 6438-10-65 PP, 6438-10-80 PP,

7838-10-31, 7838-20-31, 7838-50-31, 7838-10-46, 7838-20-46, 7838-50-46, 7838-10-65, 7838-20-65, 7838-50-65, 7838-10-80, 7838-20-80, 7838-50-80, 7838-10-31 PP, 7838-10-46 PP, 7838-10-65 PP, 7838-10-80 PP,

8038-10-31, 8038-20-31, 8038-50-31, 8038-10-46, 8038-20-46, 8038-50-46, 8038-10-65, 8038-20-65, 8038-50-65, 8038-10-80, 8038-20-80, 8038-50-80, 8038-10-31 PP, 8038-10-46 PP, 8038-10-65 PP, 8038-10-80 PP,

8338-10-46, 8338-10-65, 8338-10-46 PP, 8338-10-65 PP.

Element designation scheme:

- reverse osmosis – SNRO AABB-CC PP / SNRO AABB-CC,
- nanofiltration – SNNF AABB-CC,
- ultrafiltration – SNUF AABB-DD-CC PP / SNUF AABB-DD-CC, where

SNRO, SNNF, SNUF – designation of a series of elements,

AA – element diameter, inch*10,

BB – element length, inch,

CC – thickness of the vortex generating mesh, milinch,

DD – molecular weight cutoff (MWCO), kDa,

PP – membrane sheet on a polypropylene backing.

1.3. Spiral membrane elements are cylinders obtained by spiral winding of membrane stacks on a perforated tube with the vortex generating mesh inside and drainage material enclosed between them. The membrane stack is sealed by gluing with adhesive composition at the three sides of the perimeter, the fourth side of the perimeter is open to the tube. The membrane acts as a semi-permeable filtering partition. The elements are wrapped in a vortex generating mesh on the outside.

1.4. The membrane elements are supplied dry.

1.5. The membrane elements are packed in bags made of barrier film that prevents oxygen penetration. The bags are sealed on both sides in the nitrogen atmosphere and vacuumed.

1.6. T-23, P-33 boxes made of corrugated multi-layer cardboard according to GOST R 52901-2007 are used as individual transportation containers.

2 PURPOSE

Sanitary membrane elements are intended for use in membrane separation units for the purpose of:

- concentration of whey proteins;
- production of milk protein concentrate;
- concentration and demineralization of milk, juices, extracts, animal and vegetable proteins, biologically active substances;
- production of lactose and its derivatives;
- processing of technical solutions in pharmaceutical, food and other industries.