FRA1100 Scale Inhibitor

FRA1100 Scale Inhibitor (an 8× concentrated formulation worked as a direct replacement for PTP0100) is a high-efficiency scale inhibitor and dispersant for feed waters with elevated concentrations of metal oxides, silica, and scaling salts (e.g., calcium carbonate, calcium sulfate). It delivers robust scale control without forming insoluble precipitates or foulants in the presence of residual coagulants, aluminum/iron ions, or silica species. When dosed upstream of reverse osmosis (RO) and nanofiltration (NF) membrane systems, FRA1100 effectively protects membrane elements, extends service life, reduces cleaning frequency, and lowers operational and maintenance costs.

Product Features

- Recommended scale inhibitor by Dow Filmtec (Dow Chemical, USA), Hydranautics, Fluid Systems, Toray (Japan), and CSM (Korea).
- Effectively controls inorganic scaling over a wide concentration range; maximum allowable LSI (Langelier Saturation Index) without acid addition is 2.8.
- Does not form insoluble complexes with iron/aluminum oxides or silicates.
- Particularly effective in controlling iron, aluminum, and heavy metal pollutants; maximum allowable iron concentration on the feed water side is 8.0 ppm.
- Effectively inhibits the polymerization and deposition of silica; maximum allowable SiO_2 concentration on the concentrate side is 290 ppm.
- Applicable for reverse osmosis CA and TFC membranes, nanofiltration membranes, and ultrafiltration membranes.
- Excellent solubility and stability.
- Effective for feed water pH within the range of 5–10.
- Complies with the ANSI/NSF 60 standard for drinking water treatment chemicals.

Physicochemical Properties

The following are typical properties of FRA1100, but not to be regarded as product specifications. Product specifications are subject to availability.

Item	Standard Solution	Concentrated Solution
Appearance	Colorless or pale yellow clear liquid	Clear colorless or yellow liquid
pH (25°C)	1.5±0.5	≤2 (1% solution)
Specific Gravity at 25°C	1.08±0.05	1.45±0.05
Major Component	Low-molecular-weight organic	Low-molecular-weight organic

	compound	compound

*For specialized applications or customized solutions, please contact FFM Inc. directly.

Dosage Instructions

Determined based on full water quality analysis reports and reverse osmosis system conditions. Within the dosage range recommended by software, it can control the scaling of most of the following types: calcium carbonate, calcium sulfate, barium sulfate, strontium sulfate, iron hydroxide, aluminum hydroxide, and silica.

The volume of FRA1100 concentrated solution to be added to the dosing tank can be calculated using the following formula:

$$U = \frac{Q \times a \times V}{1000 \times \rho\_conc \times X \times n}$$

Where:

U — Volume of concentrated solution to be added, liters (L)

Q — Reverse osmosis feed water flow rate, cubic meters per hour (m^3/h)

a — Dosage, milligrams per liter (mg/L or ppm)

V — Effective volume of dosing tank, liters (L)

ρ_conc — Density of scale inhibitor concentrated solution, kilograms per liter (kg/L)

X — Actual output of dosing metering pump, liters per hour (L/h)

n — Concentration factor

Packing and Storage

Packed in 25 kg plastic drums, and can also be packed according to customer requirements. During storage and transportation, stay away from sources of ignition, heat sources, avoid exposure to sunlight, and prevent water ingress and collisions. Store in a cool and well - ventilated place.

Shelf Life

Two years.

Safety and Protection

When operating, pay attention to safty protection, avoid contact with skin, eyes, etc. If contacts rinse with large amounts of water immediately and seek medical attention immediately.