



## FRA1200 Scale Inhibitor

FRA1200 Scale Inhibitor (a 4 × concentrated formulation worked as a direct replacement for PTP2000) is a high-performance, phosphorus-free scale inhibitor and dispersant specifically formulated for reverse osmosis systems with high barium and strontium levels, where scaling from barium sulfate and strontium sulfate is a major concern. It effectively prevents scale formation over a wide range of supersaturated conditions. When used for reverse osmosis (RO), nanofiltration (NF), or ultrafiltration (UF) systems, FRA1200 significantly reduces system operational and maintenance costs.

### Product Features

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- ❖ Recommended by major membrane manufacturers such as Dow Filmtec (Dow Chemical, USA), Hydranautics, Fluid Systems, Toray (Japan), and Sempool.
- ❖ Effectively controls calcium carbonate scaling with a maximum allowable LSI value of 3.2 under non-acidic conditions.
- ❖ Also effectively controls calcium sulfate, barium sulfate, and strontium sulfate scaling over a wide concentration range:
  - $\text{CaSO}_4$  concentration can reach up to 10 times the  $K_{sp}$  (solubility product)
  - $\text{BaSO}_4$  concentration can reach up to 2500 times the  $K_{sp}$
  - $\text{SrSO}_4$  concentration can reach up to 1200 times the  $K_{sp}$
- ❖ Performs excellently in high salinity and high recovery rate systems.
- ❖ Compatible with reverse osmosis CA and TFC membranes, nanofiltration, and ultrafiltration membranes.
- ❖ Excellent solubility and stability.
- ❖ Effective over a feed water pH range of 5–10.
- ❖ Complies with the ANSI/NSF 60 standard for drinking water treatment chemicals.
- ❖ Environmentally friendly and non-polluting, as it is a phosphorus-free formulation.

### Physicochemical Properties

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The following are typical properties of FRA1200 and are for reference only. These values are not to be used as product specifications.

Item	Standard Solution	Concentrated Solution
	Indicator	Indicator
Appearance	Brown clear liquid	Brown clear liquid
pH	8.0-10.5	8.0-10.5



Specific Gravity at 25°C	1.08±0.05	1.25±0.05
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\*For specialized applications or customized solutions, please contact FFM Inc. directly.

## Dosage Instructions

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Dosage is determined based on comprehensive water quality analysis reports and reverse osmosis system operating conditions. Within the recommended dosage range, FRA1200 effectively controls scaling from calcium carbonate, calcium sulfate, barium sulfate, strontium sulfate, and fluoride.

The volume of FRA1200 concentrated solution to be added to the dosing tank can be calculated **by** 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<sup>3</sup>/h)

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

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

ρ<sub>conc</sub> — 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

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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

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Two years.

## Safety and Protection

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