FRA1000 Scale Inhibitor

FRA (FFM Reverse Osmosis Agent) - FFM' s dedicated scale inhibitor series **worked** exclusively for reverse osmosis systems. Precision-formulated to inhibit $CaCO_3$, $CaSO_4$, silica, and other scales while dispersing particles at the point of injection. Direct replacement for 11-fold concentrated ASD200/SC, delivering equivalent or superior performance with optimized dosing efficiency. Compatible with all major membranes, stable across pH 2–11 and ≤45 °C, extending membrane **duration** and reducing maintenance frequency. FRA dedicated scale inhibitor series embody Calibrated Chemistry, Constant Capability, providing reliable, sustainable protection for industrial water systems.

Product Features

- FRA1000 can simultaneously prevent fouling of membrane elements caused by inorganic salt scale, metal scale, colloidal substances, and some organic matter.
- It can also prevent deposition of calcium, magnesium, iron, aluminum, barium, strontium, and colloidal substances on the surface of membrane elements.
- Even in cases of high-concentration addition due to equipment failure or human error, no deposition, crystallization, or membrane fouling will occur on the membrane surface.
- It is compatible with major reverse osmosis membranes, including those from US-based Hydranautics, Koch, FilmTec, Dow FilmTec, Full Filtration Membranes & Filters (FFM),Toray (Japan), Sumitomo (Japan), etc.
- Water produced by reverse osmosis systems using FRA1000 is directly potable.

Physicochemical Properties

The following are typical properties of FRA1000, but they should not be regarded as product supply indicators. They are for **specification reference only.**

Item	Index
Appearance	Clear amber liquid
Odor	Slight
pH	(1% solution) 1.5 – 2.5
Specific gravity at 20°C	1.2±0.05
Freezing point	0°C

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

Instructions for Use

- It is determined based on water quality analysis reports and system conditions. For specific use, consult for our

technical engineer. FRA1000 can be mixed with water in any proportion. It can be used in either pure form or as an aqueous solution. The recommended minimum dosage is 2-6 mg/L per ton of feed water. The recommended concentration of the dosing solution is 10%.

- The addition point of FRA1000 should be downstream of any filtration equipment and cartridge filters.
- FRA1000 needs to be added continuously and in proportion to the water flow to maintain the recommended dosage level. The required dosage is related to the quality of the feed water, the composition of the concentrated salt water, and the saturation index of various foulants in it. Specialized software can be used to calculate the optimal system recovery rate, predict dosage, and recommend reserves based on the fouling index.

Dosage is determined based on comprehensive water quality analysis reports and reverse osmosis system operating conditions. Within the recommended dosage range.The volume of FRA1000 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 contact occurs, immediately rinse with large amounts of water and seek medical attention immediately.