



Lavaso<sup>™</sup> 9 is an aggressive high pH (alkaline) liquid cleaner formulated to remove silt, clay, particulate, biological, organic and other acid insoluble foulants. Combining highly effective chelants, solubilizing and dispersing agents Lavaso<sup>™</sup> 9 provides highly effective cleaning of heavily fouled membranes. Lavaso<sup>™</sup> 9 is ideal for feed waters such as surface, well and municipal water.

### Features / Benefits

- Concentrated liquid cleaner provides efficient shipping and handling
- Buffered pH to maintain optimum cleaning performance throughout cleaning cycle
- Best results when used in conjunction with either Lavaso 1 or Lavaso 6.
- Classified for use in membrane systems producing drinking water (ANSI/NSF Standard 60)

### Uses

- For use on reverse osmosis (RO), nanofiltration (NF), ultrafiltration (UF) and micro-filtration (MF) membranes
- Formulated to dissolve organic foulants from the membrane surface
- To aid in the removal of particulate, colloidal, microbiological and other acid insoluble foulants

### Specifications

Appearance	Pale yellow liquid
pH (2% solution)	12.00 - 13.00
Density (kg/L)	1.00 - 1.20



### Packaging

Pail: 5 gallon/18.9 liter

Tote: 275 gallon/1,040 liter

Drum: 55 gallon/208 liter

*For special packaging options, please contact PWT or your local distributor.*

**Lavaso<sup>™</sup> 9**  
LIQUID MEMBRANE CLEANER

# Lavasol™ LIQUID MEMBRANE CLEANER 9

## General Mixing & Application Instructions for Lavasol™ 9

1. Inspect all cleaning system components to include CIP tank, hoses, and cartridge filters. Flush or replace if necessary. Fill cleaning tank with RO permeate or DI water. Turn on agitator or tank recirculation pump.
2. Slowly add Lavasol™ 9 to cleaning tank (1 gal [3.8 L] of Lavasol™ for every 50 gal [189 L] of water). Mix thoroughly. The solution pH should match product specification. If necessary, adjust pH with a membrane-approved chemical such as caustic, citric, sulfuric or hydrochloric acid. The solution should be heated up to 45°C to improve cleaning efficacy.
3. Circulate solution in the same direction as the feed flow. Typical circulation times are 30-90 minutes.\* PWT recommends cleaning each stage of the system separately. Maximum flow rate per pressure vessel is 40 gpm (152 Lpm) for 8-inch elements and 10 gpm (38 Lpm) for 4-inch elements. Maximum pressure for cleaning is 60 psig (4.2 kg/cm<sup>2</sup>).
4. In cases of heavy fouling, divert the first 10-20% of cleaning solution to drain to prevent re-deposition of removed solids.
5. Rinse with RO permeate before returning system to service. When returning unit to service, divert product water to drain until any residual cleaning solution has been rinsed from system.

\*Depending on the nature of the fouling, a soak period may be necessary for optimum results. Please contact PWT or your local distributor for custom cleaning procedure, or consult PWT's Technical Bulletin 503 for further cleaning recommendations.

## ProDose XPRT™ – Scaling Prediction Software

ProDose XPRT™ uses the most accurate scaling prediction calculations available to accurately determine effective antiscalant dosage, and cleaning chemical usage. The user can enter multiple cases to study various operating conditions, directly enter concentrate analysis, and select the best PWT product and dosage for the application.

*ProDose XPRT™ is available upon request only. Please contact your PWT representative for more information.*

The screenshot displays the PWT ProDose software interface. At the top, there is a navigation bar with various parameters: UNITS (US), TEMPERATURE (Fahrenheit), PERMEATE FLOW (81.00), RECOVERY (75.0%), ANTISCALANT (SpectraGuard Liquid), DOSAGE (2.95 PPM), SOURCE (Well Water), PROJECT NAME (Project 1), and CASE (1). Below this, a sidebar on the left contains menu items: PROJECT INFORMATION, WATER QUALITY, SYSTEM INFORMATION, CHEMICAL SELECTION, CALCULATIONS, and REPORT. The main content area is divided into several sections: OVERVIEW (with fields for CLIENT NAME: City of San Diego, PROJECT NAME: Project 1, LOCATION, PREPARED BY, DATE: 5/1/2016, and WATER TYPE: Well Water), MEASUREMENTS (with preset units set to CGS, temperature in Deg F, flow rates in Gal/min, and mass units in lb), COMMENTS (OPTIONAL) (a large empty text area), and TOTAL CASES (1 AVAILABLE) (a table with one row showing Case 1 with a modified date of 5/27/2016). The interface is clean and professional, with a dark grey header and sidebar, and a light grey main content area.



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