

## Pre-Startup Cleaning Procedure for SUPER-COR<sup>®</sup> Modules

The following cleaning procedure must be performed prior to initial use of modules and whenever system has been inoperative for more than four (4) hours. This procedure will remove storage solution and condition membranes for production. Failure to follow this recommendation may lead to poor performance and will void module warranty. Please refer to the KSS Water Quality Guidelines on the reverse side of this document.

### PRE-STARTUP CLEANING PROCEDURE

<b>Step 1</b>	<b><u>Alkaline Cycle:</u></b>	<b>pH 10.0-10.5</b>	<b>122°F (50°C)</b>	<b>10 min.</b>
	Fill system with clean, soft water (122°F/50°C). Add to circulating water: <ul style="list-style-type: none"> <li>• KOCHKLEEN<sup>®</sup> 222 Cleaner (or KOCHKLEEN WA Cleaner in Europe) to adjust pH to 10.0-10.5</li> </ul> Circulate solution at standard pressure and flow conditions for 10 minutes.			
<b>Step 2</b>	<b>Drain, then flush system with clean, soft water (122°F/50°C) using minimum three times system hold-up volume.</b>			
<b>Step 3</b>	<b><u>Alkaline Cycle:</u></b>	<b>pH 11.5-12.0</b>	<b>122°F (50°C)</b>	<b>30 min.</b>
	Drain and fill system with clean water (122°F/50°C). Add to circulating water: <ul style="list-style-type: none"> <li>• KOCHKLEEN 222 Cleaner (or KOCHKLEEN WA Cleaner in Europe) to adjust pH to 11.5-12.0.</li> </ul> Circulate solution at standard pressure and flow conditions for 30 minutes.			
<b>Step 4</b>	<b><u>Drain/Flush Cycle:</u></b>	<b>Neutral pH</b>	<b>122°F (50°C)</b>	<b>10 min.</b>
	Drain, then flush system with clean, soft water (122°F/50°C) using minimum three times system hold-up volume.			
<b>Step 5</b>	<b><u>Water Flux:</u></b>	<b>Neutral pH</b>	<b>122°F (50°C)</b>	<b>10 min.</b>
	Record water flux value. If new membrane does not achieve water flux of at least 225 gfd (380 l/mh) corrected to 50 psi and 77°F (25°C), repeat Step 1 with 0.1-0.2% (v/v) KOCHKLEEN KLD III Cleaner added to Alkaline Cycle.			

For technical assistance, please contact a Cleaning Specialist at +1-978-694-7050.  
To place an order, please contact our Customer Service Department at +1-978-694-7005.

Note: If KOCHKLEEN cleaners are not readily available, please contact KSS.

# KSS Water Quality Guidelines for Cleaning and Diafiltration

*For All Polymeric Membrane and Ion Exchange/Adsorbent Resin Applications*

Parameter	MF/UF	NF/RO & IE/Ads. Resin
Turbidity	< 1.0 NTU	< 1.0 NTU
Suspended Solids (see Note 1)	< 5 mg/l	< 1 mg/l
Calcium (Ca)	< 10 mg/l	< 5 mg/l
Total Hardness (as CaCO <sub>3</sub> )	< 60 mg/l	< 30 mg/l
Iron (Fe)	< 0.05 mg/l	< 0.05 mg/l
Zinc (Zn)	< 0.3 mg/l	< 0.05 mg/l
Copper (Cu)	< 0.1 mg/l	< 0.05 mg/l
Manganese (Mn)	< 0.05 mg/l	< 0.02 mg/l
Aluminum (Al)	< 0.05 mg/l	< 0.05 mg/l
Silica, Reactive (as SiO <sub>2</sub> )	< 10 mg/l	< 10 mg/l
Silica, Colloidal (as SiO <sub>2</sub> )	< 1 mg/l	< 0.1 mg/l
Silicone	0 mg/l	0 mg/l
Total Bacteria Count (TBC)	< 1000 per ml	< 1000 per ml
E-Coli Count	0 per 100 ml	0 per 100 ml
Chlorine (as NaOCl)	< 1 mg/l	0 mg/l
D-Limonene (citrus applications only)	< 5 mg/l	0 mg/l
Fats, Oils and Grease	0 mg/l	0 mg/l
Total Organic Carbon (TOC)	< 1 mg/l	< 1 mg/l
pH (standard units)	6.5 – 7.5	6.5 – 7.5

## TABLE NOTES

- <sup>1</sup> The water supply must be free from particulate matter such as rust, scale, flakes, sandy and granular material, slurries, scum, algae and any chemical constituents that could foul or damage the membranes.
- <sup>2</sup> The water pH may need to be adjusted with acid or alkali depending on application and local conditions.
- <sup>3</sup> KSS membranes are available in many configurations and materials that may be affected differently by various water constituents. Softened water or evaporator condensate is generally acceptable for cleaning and flushing of polymeric membranes. Please consult with the KSS Process Group for the particular membrane in question.

*The information contained in this publication is believed to be accurate and reliable, but is not to be construed as implying any warranty or guarantee of performance. We assume no responsibility, obligation or liability for results obtained or damages incurred through the application of the information contained herein. Refer to Standard Terms and Conditions of Sale and Performance Warranty documentation for additional information.*

**Koch Separation Solutions, Inc.** 850 Main Street, Wilmington, MA 01887  
Main: +1-978-694-7000 • Fax: +1-978-657-5208 • Toll Free: +1-888-677-5624

For complete contact information and listing of our global locations, visit [www.kochseparation.com](http://www.kochseparation.com)

©2020 Koch Separation Solutions, Inc. All rights reserved worldwide. For related trademark information, visit <https://www.kochseparation.com/legal>.