



PRE-STARTUP CLEANING PROCEDURE FOR SUPER-G[®] 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 KMS Water Quality Guidelines on the reverse side of this document.

Step 1. Alkaline Cycle pH 10.0-10.5 122°F (50°C) 10 min.

Fill system with clean, soft water (122°F/50°C). Add to circulating water:

KOCHKLEEN[®] 222 Cleaner (or **KOCHKLEEN WA Cleaner** in Europe) to adjust pH to 10.0-10.5

Circulate solution at standard pressure and flow conditions for 10 minutes.

Step 2. Drain/Flush Cycle Neutral pH 122°F (50°C) 10 min.

Drain, then flush system with clean, soft water (122°F/50°C) using minimum three times system hold-up volume.

Step 3. Alkaline/Chlorine Cycle pH 10.0-10.5 122°F (50°C) 30 min.

Fill system with clean, soft water (122°F/50°C). Add to circulating water:

KOCHKLEEN 222 Cleaner (or **KOCHKLEEN WA Cleaner** in Europe) to adjust pH to 10.0-10.5

KOCHKLEEN 410 Cleaner to maintain 180-200 ppm total chlorine

Circulate solution at standard pressure and flow conditions for 30 minutes.

Step 4. Drain/Flush Cycle Neutral pH 122°F (50°C) 10 min.

Drain, then flush system with clean, soft water (122°F/50°C) using minimum three times system hold-up volume.

Step 5. Water Flux Neutral pH 122°F (50°C) 10 min.

Record water flux value. If new membrane does not achieve water flux of at least 335 gfd (570 lmh) 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 Technical Service at (978) 694-7050.
To place an order, please call our Customer Service Department at (978) 694-7005.*

Note: If KOCHKLEEN cleaners are not readily available for the initial cleaning/conditioning, please contact the numbers above for assistance.

KMS WATER QUALITY GUIDELINES FOR CLEANING & DIAFILTRATION

For All Polymeric Membrane and Ion Exchange/Adsorbent Resin Applications

Parameter	MF/UF	NF/RO & IE/Abs. 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 CaCO₃)	< 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 SiO₂)	< 10 mg/l	< 10 mg/l
Silica, Colloidal (as SiO₂)	< 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

1. 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.
2. The water pH may need to be adjusted with acid or alkali depending on application and local conditions.
3. KMS 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 KMS Process Group for the particular membrane in question.

PRE-STARTUP CLEANING PROCEDURE FOR SUPER-G[®] MODULES

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 for additional information.

Koch Membrane Systems, Inc., www.kochmembrane.com

Corporate Headquarters: 850 Main Street, Wilmington, Massachusetts 01887-3388, US, Tel. Toll Free: 1-888-677-5624, Telephone: 1-978-694-7000, Fax: 1-978-657-5208
European Headquarters: Koch Chemical Technology Group Ltd., Units 3-6, Frank Foley Way, Stafford ST16 2ST, GB, Telephone: +44-178-527-2500, Fax: +44-178-522-3149

• Aachen DE • Lyon FR • Madrid ES • Milan IT • Wijnegem BE • Beijing & Shanghai CN • Mumbai & New Delhi IN • Melbourne & Sydney AU • Singapore • Sao Paulo BR • Dubai UAE •

For related patent and trademark information, visit www.kochmembrane.com/legal
Koch Membrane Systems, Inc. is a Koch Chemical Technology Group, LLC Company.