Kleen* MCT511E

FACT SHEET

- Compatible with polyamide thin-film composite membranes
- Optimum results are obtained when used in conjunction with Kleen MCT882 and BioMate* MBC2881E
- Extremely effective against oils and many other organic compounds
- Excellent results when used to clean biological matter and eliminate biological slime from the membrane surface
- Buffered to maintain an effective pH over a range of dilutions
- Enhanced performance at elevated temperatures
- Liquid cleaner which allows shorter mixing time
- Low foam formulation
- No adverse effects with repeated use

Description and Use

Kleen MCT511E is a high pH liquid formulation designed to remove organics, silt, and other particulate deposits from polysulfone, fluorocarbon, and all polyamide thin film composite reverse osmosis (RO) and ultrafiltration (UF) membranes. This product provides superior cleanings allowing longer run times.

Typical Applications

DO NOT USE Kleen MCT511E on cellulose acetate membrane.

For optimum results, Kleen MCT511E should be used in combination with Kleen MCT882 and BioMate MBC2881E.

During the operation of a reverse osmosis or ultrafiltration system, organic materials, as well as suspended solids in the incoming water, can accumulate on the membrane surface. The presence of organic materials also provides an environment conducive to microbiological activity, which can result in microbiological fouling. Fouling from these species impedes the flow of water through the membrane. This can result in unacceptably low production, high operating pressure, or an excessive pressure drop in the system, which may lead to irreversible membrane damage. Additionally, accumulation of these foulants on the membrane surface can increase the amount of dissolved material passing through the membrane, resulting in product water of unacceptable quality. Before these foulants can accumulate to a level where product water declines or membrane damage can occur, they should be removed by a clean-in-place (CIP) off-line cleaning. Indications of the need for cleaning include a significant decrease in normalized permeate flow, a significant increase in pressure drop across the system (or individual stage), or an increase in the normalized salt passage, such that product quality is unacceptable. Your Veolia representative can assist you with monitoring your system and determining when cleaning is advised.

Kleen MCT511E contains a blend of solubilizing and complexing agents designed to specifically remove organic and particulate foulants from the surfaces of the membrane. Used in tandem with an acidic cleaner for scale removal, regular cleanings with Kleen MCT511E can help to preserve the life of RO membranes.

Depending on the nature of the fouling, a soak period may be necessary for optimum results. Consult your Veolia representative for details.

Kleen MCT511E is not a biocide. If sterilization of the membrane and equipment surfaces is desired, contact your Veolia representative.

Treatment and Feeding Requirements

Feed System - This product should be used in conjunction with the membrane cleaning equipment supplied by the manufacturer of the membrane system. If such a system is not present, contact your Veolia representative for information on fabricating or obtaining a cleaning system.

Dilution - The product must be diluted prior to introduction into the membrane system. The recommended dilution for this product is one pound (0.45 kg) of Kleen MCT511E per 5 gallons (19 L) of water (approximately one gallon (3.8 L) of Kleen MCT511E for each 50 gallons (189 L) of water.

Materials Compatibility - Corrosion-resistant equipment, such as PVC, should be used for the storage and preparation of this product. Pumping materials meeting the concentrated or diluted products should also be corrosion-resistant.

General Cleaning Instructions

The following general cleaning procedure can be followed.

For the optimum cleaning procedure for your system, contact your Veolia representative.

1. Inspect cleaning tank, hoses, and cartridge filter. Clean tank and flush hoses if necessary. Install new cartridge filters.
2. Fill cleaning tank with RO permeate or DI water. Turn on agitator or tank recirculation pump.
3. Slowly add Kleen MCT511E to cleaning tank (1 gal [3.8 L] of product for every 50 gal [189 L] of water) and allow to mix thoroughly.
4. Check solution temperature. If solution temperature is lower than recommended level, adjust heating control to provide optimum temperature. If manufacturer's recommendation is not available, contact your Veolia representative.
5. Check solution pH. The solution pH should be 10 to 11.5 or as recommended by the membrane manufacturer. If pH is too low, adjust pH upward with NaOH, or other chemical as recommended by the membrane manufacturer. If pH is too high, adjust with hydrochloric acid.
6. Circulate solution through one stage at a time in the direction of feed flow for 30 minutes. Circulate at the flow rate recommended by the membrane or system manufacturer. If the manufacturer's recommendation is not available, contact your Veolia representative. Pressure should be low enough so that no permeate is produced during cleaning, but always less than 60 psig (4.2 kg/cm2) In cases of heavy fouling, the first return flow (up to 15% of the cleaning tank volume) should be diverted to drain to prevent redeposition of removed solids. For optimum results, each stage must be cleaned separately in a multistage system.
7. If the first stage cleaning solution becomes turbid or discolored, dump the tank and prepare a fresh cleaning solution before proceeding. If solution pH or temperature move out of the recommended range, a new solution should be prepared. In any event, a new cleaning solution should be prepared for each stage.
8. Rinse with ROE permeate before returning system to service.
9. When returning unit to service, divert product water to drain until any residual cleaning solution has been rinsed from system.

Packaging Information

Kleen MCT511E is a liquid material available in a wide variety of customized containers and delivery methods.

Contact your Veolia representative for details.

Safety Precautions

A Material Safety Data Sheet containing detailed information about this product is available on request.

LENNTECH
Water Treatment Solutions
info@lenntech.com Tel. +31-152-610-900
www.lenntech.com Fax. +31-152-616-289

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