

Water Technologies & Solutions
fact sheet**Kleen* MCT503****membrane cleaner – GRAS approved and kosher**

- Suitable for use with cellulose acetate, polyamide, and PVDF membranes.
- Liquid product, low foaming and buffered to maintain an effective pH over a range of dilutions.
- Enhanced performance at elevated temperatures
- No adverse effects with repeated use.
- Ingredients in this formulation are self-affirmed as GRAS for membrane process applications.
- Optimum results are typically achieved when used in conjunction with a high pH Kleen MCT product. Please refer to the Cleaner Recommendation feature within Argo Analyzer to select the best combination of products for your specific combination of foulants and/or scale.

description and use

Kleen. MCT503 is a low pH liquid formulation, containing a blend of solubilizing and complexing agents, designed specifically to remove metal hydroxides, calcium carbonate, and other similar scales from reverse osmosis (RO), nanofiltration (NF), ultrafiltration (UF) membranes, and microfiltration (MF). Used in tandem with an alkaline cleaner for organics and particulate removal, this highly effective product provides superior cleanings, resulting in longer system running times and optimal membrane life expectancy.

typical applications

During the operation of a membrane separation system, dissolved solids in the incoming water can concentrate up to a level where they begin to precipitate on the membrane surface. Scaling from hardness and

metal salts found in most unsoftened water supplies 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, the accumulation of scale next to the membrane surface can increase the amount of dissolved material passing through the membrane, resulting in product water of unacceptable quality. Before the scale accumulates to a level where product water declines or membrane damage can occur, it should be removed through 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 SUEZ representative can assist you with monitoring your system and determining when cleaning is advised.

feed requirements

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

Dilution - The recommended dilution is 1.4 lb (0.64 kg) of Kleen MCT503 per 5 gallons (19L) of water (approximately 1.4 gal [5.4L] of Kleen MCT503 for each 50 gallons [189L] of water).

Materials Compatibility - Corrosion-resistant equipment, should be used for the storage,

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preparation, and use of this product per the following compatibility chart:

Rating	Material
A	Viton A, Buna N, Hypalon, Neoprene, EPR, Natural Rubber, Viton Lithurge, Kynar, Polypropylene, Teflon
B	
C	LB, SS, Butyl, Buna S, Polyethyl HD & LD, PVC, Polyethyl HDCL, Polysulfone
X	LCS, Al, Nylon

(Viton and Teflon are registered trademarks of E.I. DuPont de Nemours and Company. Kynar is a registered trademark of Arkema Inc.)

packaging information

Kleen MCT503 is a liquid material, available in a variety of containers and delivery methods. Contact your SUEZ representative for details.

general cleaning instructions

The following general cleaning procedure can be followed. For the optimum cleaning procedure for your system, contact your SUEZ representative.

1. Inspect cleaning tank, hoses, and cartridge filters. 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 MCT503 to cleaning tank (1.4 pound (0.45 kg) of Kleen MCT503 per 5 gallons (19 L) of water, or 1.4 gal (5.4L) per 50 gallons (189L) 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 SUEZ representative.
5. Check solution pH. The solution pH should be 2 to 3 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 in the direction of feed flow for a minimum of 30 minutes. Circulate at the flow rate recommended by the membrane or system manufacturer. If the manufacturer's recommendation is not available, contact your SUEZ representative. Pressure ideally should be low enough so that minimal permeate is produced during cleaning.

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 moves 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 RO 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.

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

safety precautions

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

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