Water Technologies & Solutions
fact sheet

Kleen* MCT405

liquid alkaline membrane cleaner

- Designed to provide excellent cleaning performance for prolonged membrane life.
- Specially formulated to provide superior cleaning and removal of organics, biofilm and colloidal materials from membrane surfaces.
- Buffered to maintain desired pH over a range of dilutions.
- Enhanced performance at elevated temperatures.
- For use on PA membrane elements. Do not use on CA membranes.
- NSF certified for use in potable water applications (certified to NSF/ANSI Standard 60).

description and use

Kleen MCT405 is a liquid proprietary caustic blend containing surfactants and detergents. It is recommended for use in removing organic foulants such as oils and bioproteins from membrane elements. This highly effective product provides superior cleanings, resulting in longer system running times.

typical applications

During the operation of a membrane separation system, organic materials and suspended solids in the incoming water can accumulate on the membrane surface. 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, the accumulation of deposit 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 deposit accumulates to a level where product water flow or quality declines, or membrane damage occurs, 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.

Regular cleanings with Kleen MCT405 will help to preserve the life of your membranes when used in tandem with a low pH cleaner for scale and particulate removal such as Kleen MCT103.

treatment and feeding requirements

Do not use on CA membranes.

Feed System - This product should be used in conjunction with membrane cleaning equipment supplied by the manufacturer of the membrane /RO system. If such a system is not present, contact your SUEZ 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 MCT405 per 5 gallons (19 L) of water [approximately one gallon (3.8 L) of Kleen MCT405 for each 50 gallons (189 L) of water].

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The target conductivity range for this dilution of Kleen MCT405 is 2,400 to 3,000 micromhos. Contact your SUEZ representative for recommended cleaning solution volumes based upon your individual system requirements.

safety precautions

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

Corrosion-resistant materials should be used for the storage and handling of this product. Discuss recommended materials of construction with your SUEZ representative.

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 the recommended amount of Kleen MCT405 to the cleaning tank 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. Do not allow the temperature to exceed 95°F (34°C).
5. Check solution pH. The solution pH should be 11.0 to 12.0, 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. Consult with your SUEZ representative regarding your system's ability to tolerate this pH range.
6. Circulate solution in the direction of feed flow for 30 minutes. Circulate at the flow rate recommended by the membrane or system manufacturer. If manufacturer's recommendation is not available, contact your SUEZ representative. Pressure should be low enough so that minimal permeate is produced during cleaning, but always less than 60 psig (4.2 kg/cm^2). 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. This product is a moderate foamer. Minimize foaming in the CIP tank by placing the permeate and concentrate return lines under the liquid level in the CIP tank. A spray-hose may be used for periodic knocking-down of the foam. DO NOT apply an antifoam; most antifoams are not compatible with PA membranes.
8. 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.
9. Rinse with RO permeate water before returning system to service.
10. When returning the 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.