

Water Technologies & Solutions
fact sheet

MemChem* MCT201

membrane cleaner

- Suitable for use with all types of membranes.
- Specially designed for Ultrafiltration and Microfiltration systems
- Solid product, no foaming and buffered to maintain an effective pH over a range of dilutions.
- Enhanced performance at elevated temperatures
- Standard Applications: Optimum results are obtained when used in conjunction with other SUEZ Kleen* MCT and MemChem MCT product series.
- Allow pH buffering during cleaning process and temperature changes
- Product is NSF ANSI 60 approved for offline cleaning

description and use

MemChem MCT201 is a low pH solid formulation, containing complexing and buffering agents, designed specifically to remove particulate fouling, metal hydroxides, calcium carbonate, and other similar foulants from the membrane system surface, like nanofiltration (NF), ultrafiltration (UF) membranes, and microfiltration (MF). It can be as well used for reverse osmosis (RO) cleaning.

MemChem MCT201 can be used in tandem with neutral and alkaline SUEZ cleaners for organics and particulate removal.

This highly effective product provides superior cleanings, resulting in longer system running times and improved membrane life expectancy.

typical applications

During the operation of a membrane separation system, dissolved solids in the incoming water of the membrane systems, can have metal inorganic and organic compounds that, either by filtration or by local concentration precipitate or foul on the membrane surface.

Scaling from hardness and metal salts is found for example as pH increase in most un-softened water supplies. The deposition of foulants reduces 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.

Before the deposit accumulates to a level where produced 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 (Transmembrane pressure), or in RO and NF systems 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.

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Dilution - The recommended dilution is "0.2% -3%" of MemChem MCT201.

packaging information

MemChem MCT201 is a solid material, available in a variety of containers and delivery methods. Contact your SUEZ representative for details.

general cleaning instructions

The system must be off line when operating the cleaning using the CIP system designed for this purpose.

The following general cleaning procedure can be followed. For the improved 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 if filtration is available.
2. Fill in the cleaning tank with RO permeate or DI water when cleaning RO and NF systems, while UF and MF could use filtrated water. Turn on agitator or tank recirculation pump.
3. Heat the water to the maximum allowed temperature as per the system manufacturer. Normally temperatures should be below $< 104^{\circ} \text{ F}$ (40° C). Check solution temperature. If manufacturer's recommendation is not available, contact your SUEZ representative.
4. Slowly add MemChem MCT201 to cleaning tank as per the adequate use concentration (normally 0.2% -3%) and allow to mix thoroughly.
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 Betz* MPH2500, or other chemical as recommended by the membrane manufacturer. If pH is too high, adjust with Betz MPH5000. Betz MPH2500 and Betz MPH5000 are NSF approved for pH adjustment.
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 manufacturer's recommendation is not available, contact your SUEZ representative.
7. Pressure should be low enough so that minimal permeate is produced during cleaning, but always less than 60 psig (4.2 kg/cm^2).
8. In cases of heavy fouling, the first return flow (up to 15% of the cleaning tank volume) should be diverted to drain to prevent redistribution of removed solids.
9. In RO system for optimum results, each stage must be cleaned separately in a multistage system.
10. To control that the solution has the right product concentration, measure pH, conductivity and temperature. If the solution temperature is higher or lower than recommended level, adjust heating or cooling control to provide optimum temperature. Normally pH will be stable after the cleaner has removed carbonates and metal oxides.
11. Stop recirculation and soak for 30 minutes.
12. Repeat the recirculation and soaking stages based on the foulant amount and system foulant experience. In case the cleaning is not resulting on a recovery contact SUEZ for further evaluation of the procedure as the foulant may require additional or enhanced cleaning procedures.
13. If the 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.
14. Rinse with RO/NF permeates for these systems or Filtrated UF/MF water for UF/MF systems before returning system to service. The rinsed water from the system should have the conductivity of the rinsing water to ensure the product has been displaced from the unit
15. When returning the unit to service, divert product water to drain until any residual of the cleaning solution has been rinsed from the system. Or at least drain the produced water for 30 minutes.

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

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