

MemChem* MCT253 cleaning guidelines

liquid acid membrane cleaner

description and use

MemChem MCT253 is a low pH liquid formulation that contains organic acid reductant and solvent. It is designed to dissolve metal oxides (like iron, manganese, etc.) and other similar foulants from the membrane system surfaces of reverse osmosis (RO), nanofiltration (NF), ultrafiltration (UF) membranes, and microfiltration (MF).

MemChem MCT253 can be used in tandem with other neutral, acid, and alkaline cleaners for scales, organics, and particulate removal.

This highly effective product provides superior cleaning, resulting in longer system run times and optimal membrane life expectancy.

treatment and feeding 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 product must be diluted prior to introduction into the membrane system. The recommended dilution for this product is 0.2% to 1.5% by weight.

Materials Compatibility - Corrosion-resistant equipment, such as PVC, should be used for the storage and preparation of this product. Pumping materials that come in contact with the diluted product should also be corrosion-resistant.

application rate for UF/MF systems

Clean		MemChem MCT253
Maintenance Clean	Concentration	0.2%-0.4% w/v
	Frequency	Once/week to daily
Recovery Clean	Concentration	0.5%-1.5% w/v
	Frequency	1 - 6 months

cleaning instructions

The following is a general cleaning procedure. For the optimum cleaning procedure for your system, contact your SUEZ representative.

1. Inspect cleaning tank, hoses, and cartridge filters (if any). Clean tank and flush hoses if necessary. Install new cartridge filters (best practice).
2. For systems on a maintenance cleaning, begin aeration at the UF aeration rate and drain the membrane tank.
3. A backwash followed by a gravity drain must be performed prior to commencement of maintenance cleaning to remove solids. UF permeate from the backpulse/UF permeate tank is used.
4. Fill in the cleaning tank with MF/UF permeate. Turn on agitator or tank recirculation pump.
5. Heat the water to the maximum allowed temperature as per the system manufacturer. Normally temperatures should be below <95°F



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(<35°C). Check solution temperature. If manufacturer's recommendation is not available, contact your SUEZ representative.

6. The MemChem MCT253 cleaning solution should be prepared by dosing the chemical on the discharge of the CIP pump as it recirculates across the membrane modules or by premixing in the CIP tank.
7. Check solution pH. If pH is too low, adjust upward with caustic or another chemical, as recommended by the membrane manufacturer. If pH is too high, adjust with acid. If dosing on the discharge of the CIP pump, care must be taken to not exceed the maximum chemical concentration or pH limits of the membrane at any time.
8. For maintenance cleaning, soak the membranes for 60 to 90 minutes or depending upon membrane manufacturer's instructions/guidelines. Note: heavily fouled membranes may require higher soak time.
9. A cycle of 15 minutes each of recirculation and soaking may achieve better cleaning efficiency.
10. Upon completion of maintenance cleaning, spent solution is either returned to the CIP tank for neutralization or discharged directly to the drain depending upon site conditions.
11. Following maintenance cleaning, the membrane train must be adequately flushed/rinsed of cleaning solution with feedwater prior to returning to production. The rinsed water from the system should have the conductivity of the rinsing water to ensure the product has been displaced from the unit.
12. MF/UF systems experiencing heavy fouling and reduction in permeate production may require multiple maintenance cleaning cycles or frequency. Repeat the recirculation and soaking stages based on the foulant amount and system foulant experience. If the cleaning does not result in recovery, contact SUEZ for further evaluation of the procedure as the foulant may require additional or enhanced cleaning procedures.

13. For recovery cleaning, follow similar steps from 1 to 11 except the total soak and recirculation time required could vary between 4 to 12 hours, depending upon the system fouling. Follow the membrane manufacturer's instructions/guidelines. Note: heavily fouled membranes may require higher soak time.

14. Once the system is put back into service, measure the permeate flow rate, transmembrane pressure (TMP), and temperature.

Addition of Kleen* MCT404, membrane cleaning enhancer at 0.25%–0.5% may result in improved cleaning efficiency and membrane permeability.

Depending on the nature of the fouling, an increased soaking period may be necessary for optimum results. Also, if soak temperature is significantly less than 20°C, the soak duration may need to be extended. In general, extended soaks and heated cleaning solutions should improve the cleaning results. Consult your SUEZ representative for details.

Also, to prevent sludge formation, aerate the tank while slowly draining to expose the membranes at certain levels, to expose membranes to aeration, and to allow an air/water interface. This is applicable to SUEZ ZeeWeed* systems only.

Use a SUEZ ZeeWeed Recovery Clean Log Sheet to record the cleaning information.

measuring successful cleaning

A successful recovery clean should recover and maintain >80% of the original permeability. Trend the temperature-corrected permeability (permeate flow rate, TMP, and temperature).