

PermaClean® PC-77

Membrane Cleaning Compound

PRODUCT DESCRIPTION AND APPLICATION

PermaClean® PC-77 is a membrane cleaner specifically designed to remove iron fouling. It also is effective against light calcium carbonate scaling. The efficacy of **PermaClean PC-77** can be enhanced by the addition of PermaClean® PC-33 to the cleaning solution although some minor pH correction may be necessary.

PermaClean PC-77 should always be used as recommended by the membrane manufacturer or equipment supplier, in respect to cleaning pH and temperature.

During normal operation, RO membranes can become fouled, which greatly reduces the efficiency of the system. Deposits build up on the membrane until they cause a reduction in permeate flow and loss in salt rejection. The effects of fouling can lead to poor water quality, loss in production, unscheduled downtime and membrane replacement. A regular maintenance and cleaning program can provide return on investment (ROI) results ranging from 100 to 250% by maintaining low pump output pressures and extending the membrane's life.

Elements should be cleaned whenever the normalized permeate flow rate or salt rejection decreases by 10-15% or the differential pressure increases by 10-15% from the original baseline data.

PHYSICAL & CHEMICAL PROPERTIES

These properties are typical. Refer to the Material Safety Data Sheet (MSDS) SECTION 9 for the most current data.

Form	Liquid
Appearance	Straw-colored
Density	9.84 lb/gal [4.46 kg/l]
Specific Gravity @ 68°F (20°C)	1.18
pH (Neat)	3.7
Freeze-Thaw Recovery	Not Available
Viscosity	Not Available
Flash Point	None
Odor	None

ACTIVE CONSTITUENTS

Considered proprietary. Please consult the MSDS for further information.

REGULATORY APPROVALS

This product has received NSF/International certification under ANSI/NSF Standard 60 in the "Membrane cleaner" category. The official name is "Miscellaneous Water Supply Products." This approval only applies to products whose container label bears the ANSI/NSF mark for use in potable water treatment applications. This product is designed to be used off-line and flushed out prior to using the system for drinking water.

Refer to the Material Safety Data Sheet (MSDS), SECTION 15 for the most recent information on approvals.

MATERIALS OF COMPATIBILITY

Compatible

All membrane elements based on **Polyamide** chemistries including
Thin Film Composite (TFC) membranes when used as directed
Unwelded 304 Stainless Steel
Unwelded 316 Stainless Steel
Welded 304 Stainless Steel

Welded 316 Stainless Steel
Neoprene O-rings
Buna-N O-rings
Hypalon O-rings
EPDM O-rings
Polyethylene piping (rigid)
Polypropylene piping (rigid)
CPVC piping (rigid)
Coated Steel (Phenolic)
HDPE
ULDPE

Not Compatible

Mild Steel

Brass
Viton O-rings
Polyurethane O-rings
Vinyl ester resin
Epoxy phenolic

DOSAGE AND FEEDING

PermaClean PC-77 should be fed via a closed feed system. A closed feed system is defined as a system in which fluid is moved from a closed storage vessel into a treated media without exposure to the atmosphere except through normal venting or pressure relief devices.

Cleaning solutions should be prepared with chlorine-free product water to give a 4% (by weight) solution, or 1 kg of **PermaClean PC-77** to every 25 kg of water. As **PermaClean PC-77** is buffered, the cleaning solution will stabilize at pH 3.6.

The cleaning time depends on the amount of fouling present but is usually completed within two to three hours. If the cleaning solution becomes red/brown in color, it must be changed as it has become exhausted. The **PermaClean PC-77** cleaning solution should always be neutralized with alkali and discarded after use.

Before returning the system to service, the operator must ensure that any residual cleaning product is removed from the membrane surfaces by thorough flushing. This may be done by monitoring the pH of the concentration until it returns to the same pH as the influent water.

Consult your Nalco sales engineer for detailed feeding and dosage information.

ENVIRONMENTAL AND TOXICITY DATA

Biological Oxygen Demand (5-day BOD ₅)	Not Available
Chemical Oxygen Demand (COD)	Not Available
Total Organic Carbon (TOC)	Not Available

Refer to SECTIONS 11 and 12 of the MSDS for all available mammalian and aquatic toxicity information.

SAFETY AND HANDLING

Chemical resistant gloves and safety goggles should be worn when handling **PermaClean PC-77**. Read SECTION 8 of the MSDS for specific personal protective equipment (PPE) recommendations and SECTION 3 for health effects information.

STORAGE

Recommended in-plant storage limit is 12 months. Refer to the Material Safety Data Sheet (MSDS), SECTION 7, for the most current data.

REMARKS

If you need assistance or more information on this product, please call your nearest Nalco Representative. For more news about Nalco Company, visit our website at www.nalco.com.

For **Medical and Transportation Emergencies** involving Nalco products, please see the Material Safety Data Sheet for the phone number.

ADDITIONAL INFORMATION

PermaClean is a registered trademark of Nalco Limited.
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