

Technical Service Bulletin 112

Biocides for Disinfection and Storage

The periodic use of biocides may be required to control or eliminate biological growth in the feed/brine spacer or on the membrane surface, especially in cases of long-term storage. The following is general information on the application, use and handling of generic biocides that are suitable for use with NanoH2O's membrane elements.

Specialty chemical biocide products are formulated and distributed by a number of independent companies and marketed under various trade names. These products have typically been qualified by the chemical manufacturer for safe and effective use with composite polyamide seawater RO membranes. NanoH2O makes no representations as to either the efficacy or safety associated with such use and any such use by NanoH2O Customers is done at the sole risk of the Customer and the chemical manufacturer.

Below is a list of generic biocides approved for use.

⚠ CAUTION

Prior to use, review all applicable Material Safety Data Sheets (MSDS) and follow all manufacturer instructions and applicable governmental regulations with regard to the use, handling and disposal of biocides.

- Isothiazolin

Many manufacturers of water treatment chemicals distribute Isothiazolin under the trade name Kathon. Commercially available solutions typically contain 1.5 wt% of the active ingredient Isothiazolin. Please check the product literature to confirm the active ingredient concentration. Kathon is an effective biocide to maintain sanitary conditions in NanoH2O membrane elements at concentrations of 15 ppm to 25 ppm and may be used for system or train disinfection, or for long-term storage.

- Sodium Bisulfite

Sodium Bisulfite may be used to inhibit biological growth in the system or train when dosed daily at concentrations of 500 ppm for 30 to 60 minutes. Sodium Bisulfite at a concentration of 1 wt% may also be used to inhibit biological growth during long-term storage.

- Hydrogen Peroxide

A 0.1% to 0.2% solution of hydrogen peroxide (or a solution of hydrogen peroxide with paracetic acid) may be used for system or train disinfection. See caution statement below.

- DBNPA

The standard method to apply DBNPA is slug (intermittent) dosing. The amount of DBNPA used depends on the severity of the biological fouling. With a water less prone to biological fouling, using 10 – 30 ppm of the active ingredient for 30 minutes to 3 hours every 5 days can be effective.

⚠ CAUTION

Hydrogen Peroxide is a strong oxidizing agent and should not be used when transition metals such as iron or manganese are present in the feedwater. Oxidation of transition metals on the membrane surface will result in irreversible damage causing a reduction in salt rejection. Feedwater temperature should never exceed 25°C (77°F) when exposing membrane elements to a Hydrogen Peroxide solution. Hydrogen Peroxide should NOT be used for disinfection during long-term storage as its efficacy degrades with time.

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