

## Kem Watreat R 812

### Description

**Kem Watreat R 812** is membrane maintenance offline chemical cleaner specifically developed to remove organics, biofilm and other particulate deposits from Reverse osmosis membranes. **Kem Watreat R 812** is most powerful cleaning product which exhibits excellent performance by penetrating & evading colloidal (clay, flocs), organics (oil, cationic flocculants, humic & fulvic acids) & biological foulants (bacteria, fungi) from membrane surface at high pH level.

### What is Kem Watreat R 812?

**Kem Watreat R 812** is a highly effective cleaner of sodium salts of high basicity polymer.

### Where can Kem Watreat R 812 be used?

Kem Watreat R 812 finds application for removal of biological foulants, organics & particulate matter.

### How does Kem Watreat R 812 work?

Membrane chemical cleaning is an integral part of membrane process operation and economics of membrane processes. Microbial / Biological fouling is a result of formation of biofilms on membrane surfaces. Once bacteria attach to the membrane, they start to multiply and produce extracellular polymeric substances (EPS) to form a viscous, slimy, hydrated gel. EPS typically consists of heteropolysaccharides and have high negative charge density. This gel structure protects bacterial cells from hydraulic shearing and from chemical attacks of biocides such as chlorine. Severity of microbial fouling is greatly related to the

characteristics of the feed source.

Organic fouling is profound in membrane filtration with source water containing relatively high natural organic matters (NOM). Surface water (lake, river) typically contains higher NOM than ground water, with exceptions. For source water high in NOM, organic fouling is believed to be the most significant factor contributed to flux decline. Kem Watreat R 812 when used as a cleaning agent increases the solubility of organic matter by hydrolysis and solubilization at high pH level and makes the fouling layer to looser and more open structure to the permeate flow thus increased flux rate & efficiency of membrane for a prolonged time. The liquid product **Kem Watreat R 812** saponify the organics (turn them into soaps) or, kill the bacteria. In a broad way **Kem Watreat R 812** makes it simple for use like shorter mixing time, enhanced performance at elevated temperature for removal of organic fouling, biofouling and colloidal fouling. Below figure depicts the performance before & after cleaning.

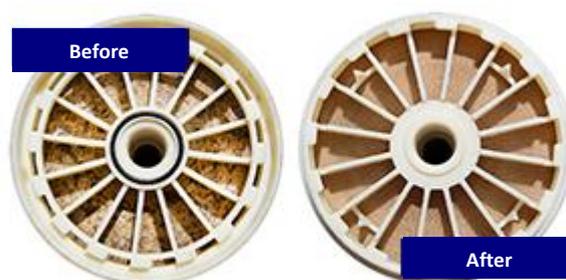


Figure 1: Membrane Module Before & After Cleaning

### When to clean RO membranes?

Elements should be cleaned whenever:

- The normalized permeate flow drops by 10%
- The normalized salt contents of the permeate increases by 10%

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- The differential pressure (feed pressure – concentrate pressure) increases by 15% from the reference conditions

It is important to clean the membrane at an early stage of fouling. If performance deteriorates by 20-30% (or more), it may be impossible to recover plant performance by routine cleaning procedures. In a badly fouled membrane the flow pattern of the cleaning solution fails to penetrate the fouling medium.

### Typical Chemical and Physical Properties

Appearance : White fine powder

pH : Alkaline

### Feeding

Always follow the membrane manufacturer's recommendations for pH, temperature and contact time. The typical dilution ratio for **Kem Watreat R 812** is a 1-5% range but never exceed membrane pH limitations. CWTL representative will help to decide the optimum concentration necessary required for cleaning the membranes. Few instructions had been outlined in the cleaning procedure of CWTL. Depending upon nature of fouling the cleaning steps need to perform.



Figure 2: Membrane Sheet Before & After Cleaning

### Why use Kem Watreat R 812?

- Simple, safe and reliable
- Ecofriendly maintenance
- Broad-spectrum mild cleaner
- Effective against inorganic scales, colloidal particles, biological growth & organic fouling
- Reduced cost of cleaning
- Improved membrane efficiency

### Packaging

Product is available in various package sizes including carboys, drums, bulk and semibulk containers.

### Storage and Safety

To prevent deterioration, store the chemical in a cool and dry place away from sunlight. Avoid very low & freezing temperatures.

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