



FILMTEC™ Membranes

Cleaning and Sanitization: Cleaning Procedure for Specific Situations

Sulfate Scale

The following cleaning procedure is designed specifically for a system that has had sulfate scale precipitated in the elements. Sulfate scales are very difficult to clean, and if their presence is not detected early, the likelihood of cleaning success is very low. More than likely, a flow loss will occur that cannot be recovered. To regain performance of the membrane system, it may take several cleaning and soak cycles.

Cleaning Procedure

There are seven steps in cleaning elements with sulfate scale.

1. Make up the cleaning solution listed from Table 1.
2. Introduction of the cleaning solution.
3. Recycle the cleaning solution for 30 minutes.
4. Soak the elements in the cleaning solution for 1-15 hours.
5. High-flow pumping.
6. Flush out.
7. Restart.

Table 1. Sulfate scale cleaning solutions

| Cleaning solutions | Solution |
|--------------------|---|
| Preferred | 0.1 wt % NaOH 1.0 wt % Na ₄ EDTA pH 12, 30°C maximum |

Cleaning chemical formula in order used: NaOH is sodium hydroxide; Na₄EDTA is the tetrasodium salt of ethylene diamine tetraacetic acid and is available from The Dow Chemical Company under the trademark VERSENE™ 100 and VERSENE 220 crystals.

For effective sulfate scale cleaning, the condition must be caught and treated early. Adding 1% NaCl to the cleaning solution of NaOH and Na₄EDTA may help because sulfate solubility increases with increasing salinity.

FILMTEC™ Membranes
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