

Technical Service Bulletin

December 2023 TSB337.06

Re-wetting Procedure for HYDRAcap™ MAX Modules and Elements

This Technical Service Bulletin describes the procedures to rewet the HYDRAcap™ MAX modules. This applies to both HYDRAcapMAX™ modules (either with a conventional rack or using HYDRAcube skids) as well as elements used in pressure vessels.

Introduction

The following procedure describes hydrophilization or wetting of HYDRAcap™ MAX membranes that have become hydrophobic due to drying. Drying may occur when the modules or elements in pressure vessels are completely drained out and left empty for extended periods of time. This can occur during commissioning/installation when modules or elements are drained of its preservative and left to dry out on the rack or during integrity or bubble testing and applying air pressure for greater than 15 min durations. When the membranes dry out, this can lead to a loss of permeability and a falsely failed integrity test.

NOTE: All precautions should be taken to prevent membranes from drying.

Solution Required

A 30% Isopropyl Alcohol (IPA) solution is used to re-wet the membranes. Alternatively, a $\geq 1\%$ Sodium Dodecylbenzenesulfonate (SDBS) solution can also be used.

Re-wetting Procedure

1. Prepare the 30% IPA or $\geq 1\%$ SDBS solution using clean water. The solution should be preferably be made inside the MC/RC cleaning system tank.
2. Drain and ensure any water in the rack (i.e. modules/elements, headers, etc.) is drained before introducing the solution.
3. Once drained, fill the rack(s) to be re-wetted with the solution by backwashing the solution into the module/element using the MC/RC cleaning system. The solution only needs to fill the modules/elements, so a filling flux of ≤ 40 LMH is recommended. However, as long as the maximum TMP of 2 bar is not exceeded, higher flux can be used.
4. Once filled, leave the modules/elements to soak in the solution for at least 30 min.
5. When ready to drain the solution, it may be necessary to re-wet other racks or repeat the re-wetting on the same rack if the desired permeability is still not achieved, so look to capture the solution for reuse if possible.

NOTE: If reusing the solution, consider if there is any clean water dilution factor and top up the chemical before reuse of the solution.

6. Flush the modules/elements with clean water and check the permeability. Repeat steps 1 – 6 until all racks are completed or until the desired permeability is achieved for each rack. For new, unused membrane modules/elements, the average TCSF over all data points should be > 300 LMH/bar (12.2 GFD/psi). For clean, used membranes, the average TCSF over all data points should be > 200 LMH/bar (8.1 GFD/psi).
7. If modules or elements need to be stored, follow storing procedures according to TSB 331 for HYDRAcap™ MAX or TSB 351 for HYDRAcube on www.membranes.com.

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