



FILMTEC Membranes

Handling and Preservation

Preservation

New FILMTEC® elements are shipped in a standard preservation solution containing 1% sodium bisulfite. All these elements have been tested by quality control, soaked in the mentioned solution for one hour, drained, and bagged into a double plastic bag. The inner bag is made out of an oxygen barrier material.

Bisulfite provides protection from biological growth.

Some types of FILMTEC elements are also available as dry elements. Those elements have not been individually tested. They are bagged into a single plastic bag. They do not require any preservation solution, but they should be kept in their sealed bag until they are used.

Any FILMTEC element that has been used and removed from the pressure vessel for storage or shipping, must be preserved in a preservation solution. Use a mixture of 1% (by weight) of sodium bisulfite – food grade, not cobalt activated – and water. Soak the element for one hour in the solution, allow to drip out, and seal it into an oxygen barrier plastic bag. We recommend re-using the original bag or original spare bags available from Dow. Do not fill the plastic bag with the preservation solution – the moisture in the element is sufficient, and leaking bags might create a problem during transport. Identify the element and the preservation solution on the outside of the bag.

Rewetting of Dried Out Elements

Elements that have dried out after use may irreversibly lose water permeability. Rewetting might be successful with one of the following methods:

- Soak in 50/50% ethanol/water or propanol/water for 15 min.
- Pressurize the element at 10 bar (150 PSI) and close the permeate port for 30 min. Take care that the permeate port is reopened before the feed pressure is released.
- Soak the element in 1% HCl or 4% HNO₃ for 1-100 hours.

Storage

Please follow these guidelines for storage of FILMTEC elements:

- Store cool inside a building or warehouse and not in direct sunlight.
- Temperature limits: -4°C to +45°C (22° to 113°F). New dry elements will not be affected by temperatures below -4°C (22°F).

Elements stored in 1% sodium bisulfite will freeze below -4°C, but the membrane will not be damaged, provided they are thawed before loading and use.

- Keep new elements in their original packaging.
- Storage time of dry elements is unlimited.
- Preserved elements should be visually inspected for biological growth every three months. When the preservation solution appears to be not clear, or after six months, the element should be removed from the bag, soaked in a fresh preservation solution and repacked.

In case no equipment for represervation (fresh solution, clean environment, bag sealing device) is available, the elements can be left in their original packaging for up to 12 months. When the elements are then loaded into the pressure vessels, they should be cleaned with an alkaline cleaner before the plant is started up.

- The pH of the preservation solution must never drop below pH 3. A pH decrease can occur when bisulfite is oxidized to sulfuric acid. This precaution is especially important for sea water membranes (SW30 and SW30HR), because the salt rejection of those membranes will be affected at low pH storage. Therefore, the pH of the bisulfite preservation solution should be spot checked at least every 3 months. Represervation is mandatory when the pH is 3 or lower.

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For more information about FILMTEC membranes,
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<http://www.dow.com/liquidseps>

Shipping

When FILMTEC elements have to be shipped, they must be preserved with a preservation solution according to the previous instructions.

Make sure that:

- the plastic bag does not leak,
- the element is properly identified,
- the preservation solution is correctly labeled.

We recommend using the original packaging with the polystyrene foam cushions to protect the element from mechanical damage. The product tube ends of elements of size < 8" are especially endangered.

Disposal

Used FILMTEC elements can be disposed of as municipal waste, provided:

- no preservation solution or other hazardous liquid is contained in the element,
- no depositions of hazardous substances are on the membranes (e.g. elements used in waste water treatment).

The technical information contained here is extracted from the **FILMTEC Membranes - Technical Manual**. References to other sections of the manual have been replaced with short references to additional but separate information available from our web site. The information in these extracts has been updated and supercedes that contained in the full manual.

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