



New Prewetting Filter Technology - February, 1998 Channel Magazine

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Many of today's filter products are constructed of all-fluorocarbon components. Such products are typically used to filter the ultra high-purity (UHP) chemicals used in semiconductor fabrication processes. One of the main reasons for this is that the requirements for clean materials are becoming increasingly strict, as is the need for chemical compatibility.

Polytetrafluoroethene (PTFE) is one of the most chemically inert materials, and is therefore an excellent material for filter membranes. It is widely used in bulk, distribution, and point-of-use chemical applications.

There is one major difficulty involved in the use of PTFE membranes though: they are hydrophobic. Such 'water-phobic' material characteristics mean that these membranes need to be prewet. Typically, this can be accomplished by using a low surface tension fluid, such as isopropanol (IPA). However, with the increasing focus on making today's semiconductor fabrication processes more 'green', such methods are losing popularity and now demand proper

► Prewet Filter Technology

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Recently, Pall Corporation announced that such filter membranes could be prewet due to the introduction of its latest 'prewet' filter technology. This technology eliminates the need to use low surface tension organic wetting solutions, while minimising environmental exposure. This provides a significant advantage to semiconductor manufacturing plants.

This prewet technology not only eliminates the problems associated with the wetting of PTFE membrane filters, but it can also increase the throughput of a typical point-of-use chemical wet bench, as it reduces the amount of time required to prewet and 'rinse up' filter cartridges during a changeout period. (See Figure 1).

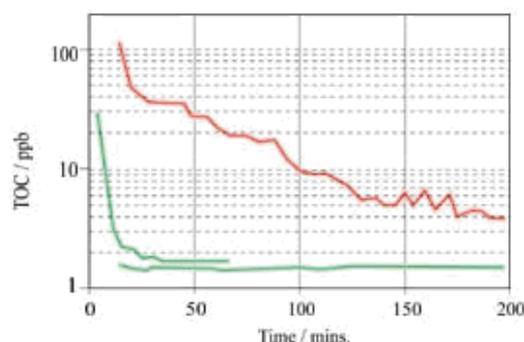


Figure 1. Downstream TOC levels during rinse-up for both an all-fluorocarbon filter (—) immediately after prewetting with 60/40 IPA/water, and a prewet all-fluorocarbon filter (—) using prewetting filter technology. The upstream TOC levels (---) are as shown.

This latest technological breakthrough provides customers with PTFE membrane filters that are packaged in 0.04µm-filtered UHP DI water (greater than 18 megohm/cm), and placed in an all-fluorocarbon bag. The entire package is heat-treated using a unique method (patent pending) to provide packaged sterility without the use of any additives. The rapid TOC and resistivity rinse up performance of this process results in the most efficient and user-friendly PTFE membrane filter products.

Eliminating the need to prewet filters with low surface tension fluids, reducing the time to change out filters through faster TOC and resistivity rinse up times, and reducing operator exposure to alcohols, are all major benefits of the latest prewetting filter technologies available today.

