

LET'S TALK TECHNICAL...

INTEGRITY TESTING OF FINAL FILTERS FOR BOTTLED WATER INDUSTRY

Membrane filtration is generally viewed as a critical part of most bottled water processing companies and is used for the removal of spoilage organisms. Consistent product quality is essential in establishing and maintaining a successful brand. Integrity testing enables manufacturers to monitor filter integrity to ensure the safety and quality of their final product.

The ultimate integrity test for a microbially rated or sterilising grade membrane filter is the bacterial challenge test. Unfortunately, this is a destructive test; the filter cannot be used afterwards to filter a product. As a result, one of the most important aspects of the use of filters to remove bacteria is to have a non-destructive integrity test, which is correlated to the production of water with a specific titer reduction. It is this correlation, rather than the non-destructive integrity test alone, that provides assurance that the filter will perform as intended. During production of bottled water, the filter should be subjected to such an integrity test before and after filtration. This is done to ensure that the filter meets microbial removal specification as indicated by the filter supplier and to ensure that the filter is correctly installed and intact during filtration.

There are three major tests used to determine the integrity of a hydrophilic membrane filter: the Bubble Point Test, the Forward Flow Test, and the Pressure Hold Test. All three of these tests are based on the same physics, the flow of a gas through a liquid-wetted membrane under applied gas pressures. They differ in which part of the flow/pressure spectrum they examine.

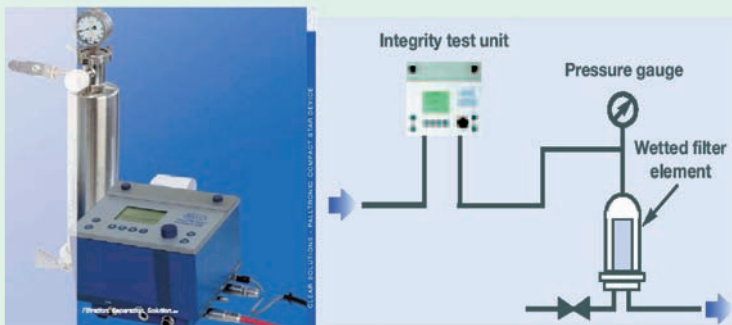
For a non-destructive integrity test to be useful, the results of the test must be able to predict the ability of the filter to remove bacteria. Such a test should also be easy to perform and highly reproducible. There must be a set of data, which documents that filters, which meet specific criteria when an integrity test is performed in a certain way will produce sterile effluent.

Integrity testing of membrane filters at water bottlers has now become a common activity and helps to ensure the security of a membrane filter's operation.

The Palltronic® Compact Star device from Pall is a fully automated, portable, and easy to use filter integrity test unit for testing final filters in the Bottled water industry. Integrity testing with the Palltronic® Compact Star device is reliable, cost-effective, and operator-friendly.

The unit is designed to perform a Pressure Hold test, a nondestructive method that measures pressure decay over a period of time (10 minutes). The test involves automatically pressurising the filter housing at a predetermined level, allowing the pressure to stabilize. The unit then takes the test measurement and depressurises the assembly through the vent valve. Fully automated, the Palltronic® Compact Star device eliminates the variability of test results that can occur with manual systems. It provides a simple, fast and objective check for filter integrity.

The Palltronic® Compact Star device is small, lightweight (6.4 kg), portable and battery-operated with many convenient features. Test programs can be recalled from memory. Test progress and results, with an explicit 'Pass' or 'Fail' indication, are displayed so all information is available at a glance. The results are automatically saved in the memory and a printout can be generated quickly and easily for analyses and process documentation. Up to 250 test programs and 1,000 test results can be stored or downloaded to a PC.



For more information on Integrity testing and frequency of testing contact Irene Neave from Pall South Africa at 011 266 2300 or 082 450 5688.