
CCN Sheath Flow Filter Testing and Replacement

DMT Technical Note



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1.0 Problem

Droplet Measurement Technologies (DMT) has recently become aware of a potential problem with CCN sheath flow filter. The symptoms are that the CCN instrument counts too many particles but will still zero count when a filter is installed on the inlet. These symptoms are noticed when doing an intercomparison between the CCN counter and another instrument. DMT researched changing to a different filter, but different pressure drops and physical sizes made this unrealistic.

2.0 Recommendations

DMT is recommending all CCN Sheath flow filters currently in service either be replaced by one tested by DMT (FL-0022, cost \$20.00 each) or be removed and tested with a CN counter. The background counts when tested on a CN counter should be very close to zero (<.5 per ccm).

NOTE: if you use a different filter that has more of a pressure drop, you may not be able to get a flow ratio of 10.

If you do not have access to a CN counter, the following procedure can be used to test the sheath filter. A “bad” sheath filter will still zero count when a good filter is connected to the inlet. This is due to the sheath air being pre-filtered by the inlet filter. You must isolate the sheath flow filter.

1. Remove sheath line from manifold block.
2. Install ASSY-0122 plug (included in startup kit) into manifold as a plug.
3. Perform a leak check to ensure no leaks were induced.
4. Install DMT tested filter on inlet of CCN.
5. Run a scan that includes a 1% SS for at least 5 minutes
6. Counts should be less than 5 per update. If counts are higher, replace sheath filter with DMT tested filter (new filters from DMT will have a “tested” label on them).

Caution: The filters may test well initially and then start to pass particles at a later date. Thus we strongly recommend that the filters are replaced or the above test is performed every 3 months. All filters in starter and service kits should also be tested; new filters from DMT will have a “tested” label on them.

Please contact Rick Drgac at Droplet Measurement Technologies if you have any questions or concerns, or if you need to order replacement filters.

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