

## Furich ePTFE filter Washability with Soap Test

Test Article: MWPTFE95  
Study number: 20200410-A01  
Report Date: April 10th 2020

### 1. Background

There are currently no established standards employed by accredited testing laboratories to measure filtering efficiency of the mask after wash or alcohol disinfection. We have established our own scientific test standard to simulate normal mask use and daily wash/disinfect cycles.

The recommended bacterial and viral disinfection method is through alcohol soak, due to its simplicity and ease of operation for average consumers and users. In scenarios where >70% alcohol is not readily available or when it is unsuitable for alcohol disinfection due to other reasons, we recommend disinfection through a soap water wash cycle. Soap water wash cycle has the disadvantage of being more complex and time consuming, with a drying time of usually more than 12 hours at room temperature and a well-ventilated room.

### 2. Test Method

1. Prepare soapy solution with 10ml of soap and 240ml of distilled water to form 250ml soapy water solution.
2. Fully submerged the sample into the solution for 60 seconds. Make sure the solution is able to make contact with all visible surface areas of the sample.
3. Carefully rinse sample.
4. Wait until fully dry.
5. Repeat as required.

Prepare 18 test articles and group test articles into 6 batches with 3 randomly selected test articles each. Each batch will go through different numbers of wash cycles starting with 1, 2, 4, 6, 8, 10. Efficiency test will be measured using NaCl aerosol @0.3um particle size, with the standard flow rate of 85 LPM.

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### 3. Results:

Test Articles	Number of wash cycles	Filtration Efficiency (%) Averaged by 3 samples
1,2,3	1	99.38
4,5,6	2	98.26
7,8,9	4	99.44
10,11,12	6	99.14
13,14,15	8	99.13
16,17,18	10	99.17

### 4. Analysis:

As can be seen from the data, there does not appear to be any statistical trend of filtration efficiency deterioration on the ePTFE membrane filter due to soapy water wash cycles. This was expected as membrane filtration does not rely on electrostatic charge to capture particles thus is not affected by the discharge effects of soapy water.

### 5. Conclusion:

Furich's proprietary ePTFE membrane filter has shown to be able to handle soapy water disinfection wash cycles without any significant efficiency drop due to charge decay.

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