

Messrs  
Stellenbosch Nanofiber Company  
7 Marconi Rd Montague Gardens  
CAPE TOWN SOUTH AFRICA

Zola Predosa, 11/06/2020

Ref. Your Order del 2020

### Test Report N° 20-0703-01

## DETERMINATION OF BACTERIAL FILTRATION EFFICIENCY (BFE)

### Sample description

# Denomination: Nanofiber Filter Material (1.0)  
# Code: NEV10  
# Lot: NEV01/20200507/1.2-3  
# Sterilization: No  
Receipt number: 16381  
Receipt date: 08/06/2020  
Sampling carried out by: Stellenbosch Nanofiber Company

### Further information about the sample

Number of tested samples: 5  
Size of the area of the specimens: 50 cm<sup>2</sup>  
Side of the test sample facing the challenge aerosol: the interna part

### Test date

The test was started on 09-10-2020 and was completed on 10-06-2020

### Test method

EN 14683:2019 Annex B

### Equipments and reagents

Vacuum pump "GEO Air Plus"  
Modified Andersen Cascade Impactor "TE-20-830"  
MMAD nebulizer 3,0 ± 0,3 µm  
Colture plates containing TSA

### Summary of method

A negative control is performed by passing air, without addition of the bacterial challenge, through the cascade impactor for 2 minutes.

Then the bacterial challenge of *Staphylococcus Aureus ATCC 6538*, with a concentration of  $1,7 \times 10^3$  to  $3,2 \times 10^3$  UFC/ml, is delivered to the aerosol chamber.

A first positive control is performed, by passing the bacterial challenge through the cascade impactor at a flow rate of  $28,3 \pm 0,5$  l/min for 1 minute. The airflow is maintained through the cascade impactor for 1 additional minute, for a total test time of 2 minutes.

The control plates are removed from the cascade impactor and fresh plates are placed in order to perform the test on the test samples.

The specimen is clamped in place between the first stage of the cascade impactor and the inlet cone of the nebulization collector and the procedure used for the positive control is repeated for each of the 5 specimens to be tested.

After the last specimen has been tested, a further positive control run is performed.

Then all the plates are incubated at  $37 \pm 2^{\circ}\text{C}$  for a length of time between 24 and 72 hours.

After the incubation, for each specimen and control run, the number of colonies is counted in order to give the total number of CFU collected by the cascade impactor.

The Bacterial Filtration Efficiency (BFE) is calculated for each test specimen, as a percentage, using the following formula:

$$\text{BFE} = [(C - T) / C] \times 100$$

where

C is the mean of the total plate counts for the two positive control runs;

T is the total plate count for the test specimen

## Results

Determination	Collected CFU	BFE (%)	BFE (%) Type I limit	Compliance to Type I limit	BFE (%) Type II and IIR limit	Compliance to Type II and IIR limit
Negative control	0					
Positive control run 1	2908					
Positive control run 2	2851					
Positive control average	2879.5					
Test 1	28	99.0	≥ 95	Compliant	≥ 98	Compliant
Test 2	36	98.7	≥ 95	Compliant	≥ 98	Compliant
Test 3	28	99.0	≥ 95	Compliant	≥ 98	Compliant
Test 4	34	98.8	≥ 95	Compliant	≥ 98	Compliant
Test 5	34	98.8	≥ 95	Compliant	≥ 98	Compliant
<b>Sample average</b>	<b>32.0</b>	<b>98.9</b>	≥ 95	Compliant	≥ 98	Compliant

The present test report exclusively refers to the referenced test sample.

If the sample has been sampled by the Customer, the results are referred to the sample as received.

The present test report may not be partially reproduced without Biochem authorization.

(#) Data provided by the Customer. The laboratory declines responsibility for such data.

Test verified by: Buriani Giampaolo, PhD.

Issue authorized by:

Head of Laboratory, Giovanni Bassini, Ch. Eng.

END OF TEST REPORT