

General testing of emergency masks  
Rev.31320a

## **Ecotax Filtration**

Internal use only

Document owner: PJH

## Index

Disclaimer .....	2
Base line test .....	3
Test set-up .....	3
Base line spray distribution .....	4
Basic breathing test – 1 .....	5
Basic breathing test –2 .....	7
Information Dustrak II .....	9
Information Minifogger (spraying systems) .....	9

## Disclaimer

The material we are using for the masks is 2 layers of F8 (PM1 – 70%) filter material.

The test we are doing are set up to verify we are on the right 'track'. These tests are in no way meant to simulate or substitute any certified testing.

## Base line test

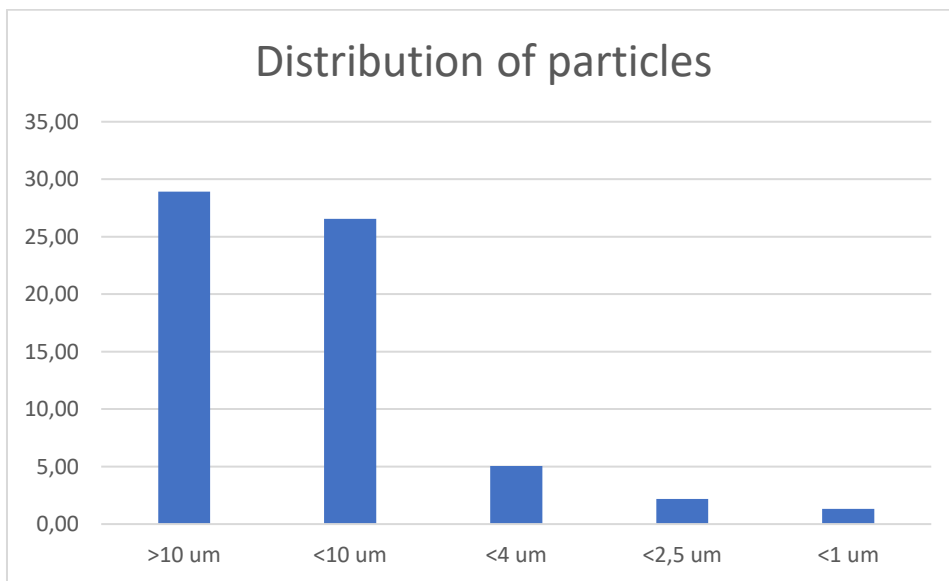
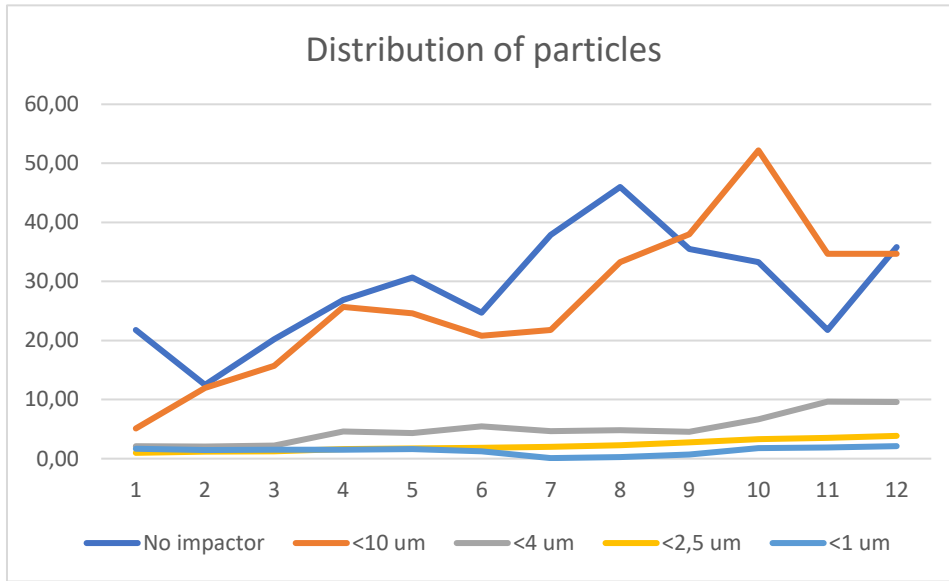
In order to define the baseline we set u a test in which we where able to define the general distribution of aerosol particles.

We used a Dustrak II particle counter, which was calibrated recently.

## Test set-up



Base line spray distribution



## Basic breathing test – 1

The test tube is connected to the cheek. Opening of the tube in front of the mouth.



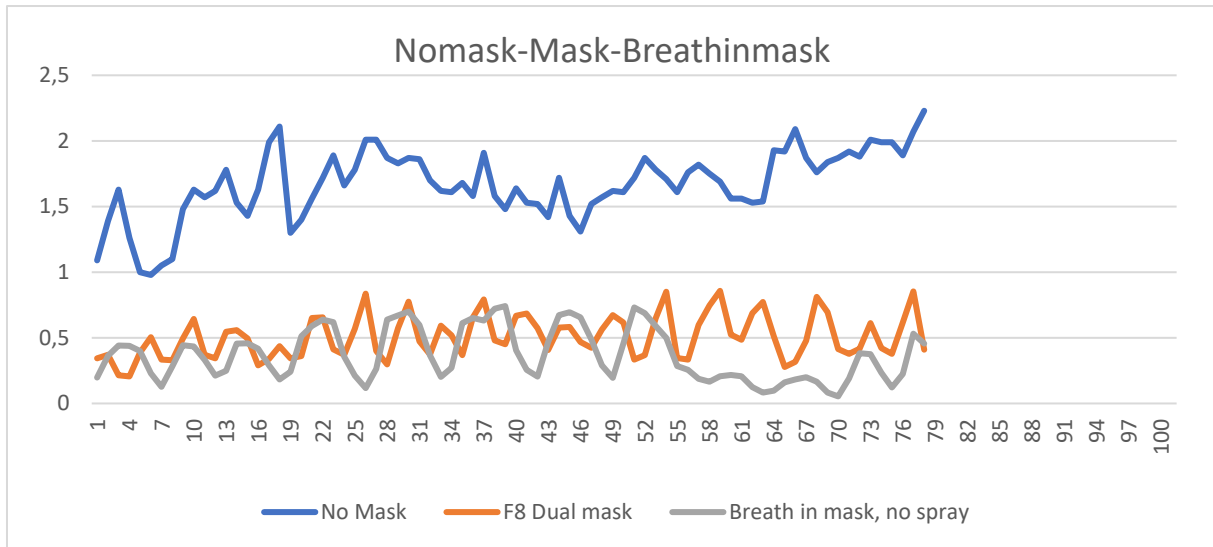
*'NoMask' setup*



*'Mask' setup*

We did a series of 3 tests:

- NoMask:** We measured the aerosol particles in front of the mouth without a mask. While the spray nozzle was ON. We tested without impactor on the Dustrak II. All particles are measured.
- Mask:** We measured the aerosol particles in front of the mouth with a mask. While the spray nozzle was ON. We tested without impactor on the Dustrak II. All particles are measured.
- Breathinmask:** We measured the aerosol particles in front of the mouth with a mask. While the spray nozzle was OFF. We tested without impactor on the Dustrak II. All particles are measured. *This test was performed in order to define the amount of particles in the mask that come from the users' breath.*



	<b>Avg (<math>\mu\text{m}/\text{m}^3</math>)</b>	<b>Reduction</b>	
Nomask	1,669718	0,00%	
Mask F8	0,507051	69,63%	
Breathinmask	0,369346	-	
Mask minus breath	0,137705	91,75%	*

We took the measured aerosol level ('Mask' measurement) and deducted average aerosol level that was present due to the users' breath. Giving some indication of the actual filtration percentage of the outdoor air.



## Basic breathing test –2

The test tube is connected to the cheek. Opening of the tube in front of the mouth.  
This test compares FFP2 (3M) versus nomask versus F8 Dual



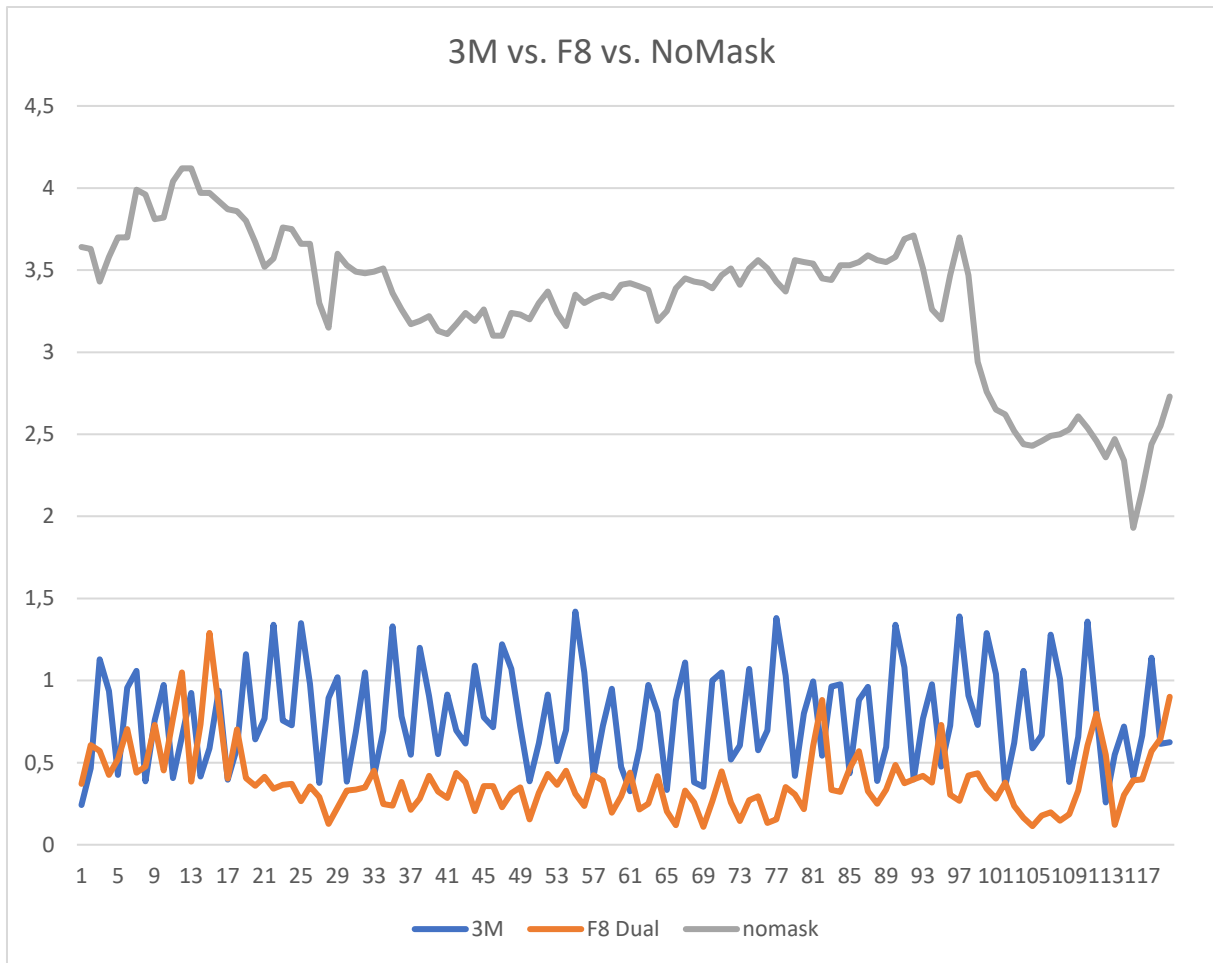
*'NoMask' setup*



*'Mask' setup*

We did a series of 3 tests:

- NoMask: We measured the aerosol particles in front of the mouth without a mask. While the spray nozzle was ON. We tested without impactor on the Dustrak II. All particles are measured. *This test was performed in order to define the amount of particles in the mask that come from the users' breath.*
- F8 Dual: We measured the aerosol particles in front of the mouth with a F8 mask. While the spray nozzle was ON. We tested without impactor on the Dustrak II. All particles are measured.
- 3M Mask: We measured the aerosol particles in front of the mouth with a FFP2 mask. While the spray nozzle was ON. We tested without impactor on the Dustrak II. All particles are measured. *This test was performed in order to define the amount of particles in the mask that come from the users' breath.*



	<b>Avg</b>	<b>Efficiency</b>
<b>nomask</b>	3,310333	100,00%
<b>3m ffp2</b>	0,777642	76,51%
<b>F8 Dual</b>	0,38635	88,33%

*Small note: after measurement point 97 during the no-mask test, the nozzle was running out of fluid. So the spray volume went down a bit.*



## Information Dustrak II

[https://tsi.com/getmedia/ecd52735-9ecd-4755-8193-5c7309960e39/DustTrak\\_Family-5001187\\_USA-web?ext=.pdf](https://tsi.com/getmedia/ecd52735-9ecd-4755-8193-5c7309960e39/DustTrak_Family-5001187_USA-web?ext=.pdf)

## Information Minifogger (spraying systems)

### PERFORMANCE TABLE

Type	Setup No.	Air Capacity* <sup>1</sup> L(normal)/min			Liquid Capacity* <sup>1</sup> L/h			Diameter* <sup>2</sup> µm		
		Type	Type	Type	Type	Type	Type	Type	Type	Type
Standard Type	SU1.0N	30	35	45	0.9	1.0	1.1	8.5	7.6	6.7
	SU2.5N				2.3	2.5	2.6	9.6	8.5	7.6
	SU3.0N				2.8	3.0	3.2	9.8	9.0	8.4
	SU4.5N	35	40	50	4.1	4.5	4.8	11.8	11.2	10.7
Economy Type	SU1.0E	26	30	38	0.9	1.0	1.1	8.8	8.0	7.0
	SU2.5E				2.3	2.5	2.6	10.6	9.7	8.5

\*1 Data per nozzle. \*2 Particle size measuring position 200mm from nozzle, center part of spray.

### SPECIFICATION

Material			Connection		Connection	
Body	Nozzle	Packing	Air Side	Water Side	Single-Nozzle	Multiple 4- Nozzle
Polypropylene (PP)	Standard : 303SS	Fluoro- rubber	Rc1/4 (F)	Rc1/8 (F)	About 210g*	About 250g*
	Option : PTFE					

\*When assembled SUS 303 nozzle.