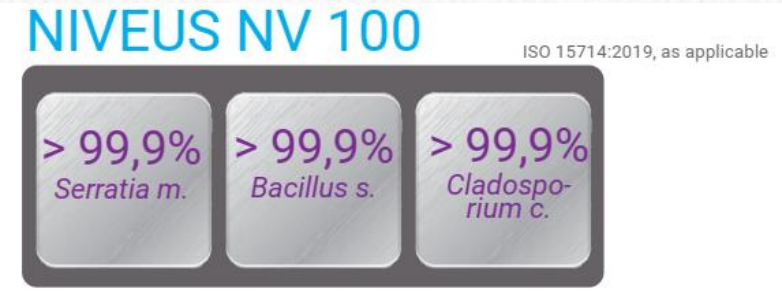
NIVEUS
Professional air purifier

Checking efficacy of Netco's Niveus NV100 system

Gelt International verify the reduction of air microbiological activity by one copy of Netco srl device



Gelt International, scientific consulting company, has checked, as external auditor, the performance of one copy of Netco srl's air-purifier device, performing microbiological and chemical analysis.

Niveus NV 100 system is composed by several air-treatment modules: a **ULPA U15 grade filter**, a **UV-C chamber** and an **active charcoal filter**.

https://www.geltinternational.it/index.php/verifica-efficacia-netco/

The scope of the test is to verify the efficacy of the entire system in reducting the airborne microbial populations. The test is carried out nebulizing three microrganism (rapresenting Gram + bacteria, Gram -bacteria and fungi) in the air entering the copy of the device and verifying their reduction in the outgoing air.

Results

Netco system, **Niveus NV100,** had been tested with three microrganism:

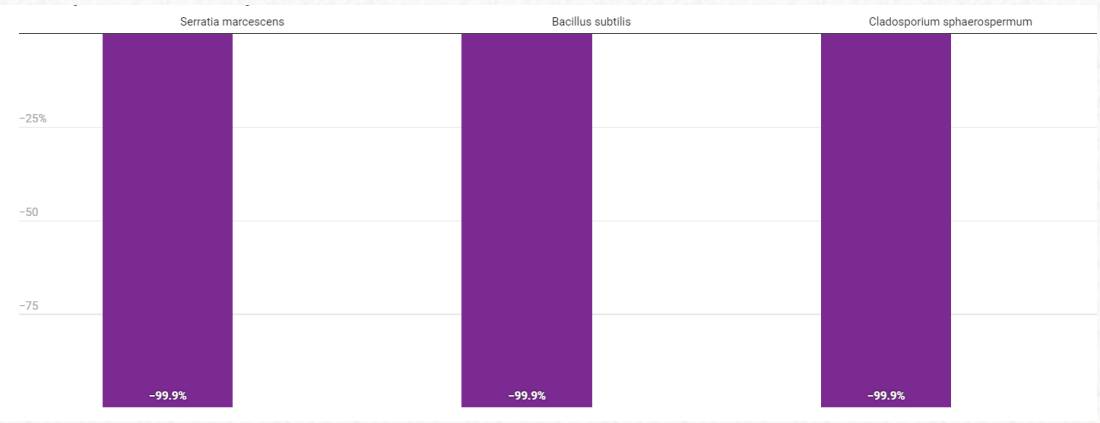
•**Serratia marcescens**, Gram-negative bacteria.

•**Bacillus subtilis**, Gram-positive bacteria;
•**Cladosporium sphaerospermum**, sporigen fungus.

The results of the tested carried out in the entire system with all the filtering module show that the Niveus NV 100 is able to reduce the microbial air populations for all of the tested microorganism. In fact, each microorganism is inactivated up to 99,9%.

Reduction of air microbial activity - Niveus NV 100

Percentage of reduction of test microrganism



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fiatec
Filter & Aerosol Technologie GmbH

Performance Test
On a Portable Room Air Cleaner

Model NV100

TEST REPORT ECA 201104-RL1

Mainleus, December 15th, 2020

According ECARF Criteria for allergy-friendly Air Purifiers
(November 2016)

initiated by:

ECARF Institute GmbH

Allergy-friendly
Quality Tested
ECARF
www.ecarf-siegel.org

fiatec Filter & Aerosol Technologie GmbH, Burgkunstadter Str. 3, 95336 Mainleus, Germany

Certificate

Quality Seal for Allergy-Friendly Products and Services

Allergy-friendly
Quality Tested
ECARF
www.ecarf-siegel.org

Certificate No.	6323
Certified product or service	RUPES model NV100
Certificate holder	RUPES S.p.A.
Certificate valid from	19.01.2021 (DD.MM.YYYY)
Certificate valid until	19.01.2023 (DD.MM.YYYY)

Approved allergy-friendly quality of this product/service is certified by the European Centre for Allergy Research Foundation.

Berlin, 09.02.2021
(DD.MM.YYYY)

Prof. Dr. med. Dr. h.c. Torsten Zuberbier
Head of ECARF

ECARF
For a Better Life with Allergies

Europäische Stiftung für Allergieforschung
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office@ecarf.org, www.ecarf.org

https://ecarf-siegel.org/en/products/rupes-model-nv100/

Filter Class
Grade ULPA 15

fiatec
Filter & Aerosol Technologie GmbH

PERFORMANCE TEST OF ULPA FILTER ELEMENT

Code 001.1615
∅ 320 x 500 mm
Glass fiber media

Grade >U15 (300 m³/h)

TEST REPORT: NET 200701 - PT1

August 18th, 2020

according to EN 1822-1:2019
and EN ISO 29463-5:2018

initiated by:

NETCO srl

Filter Class
Grade ULPA 15

Test report according to EN 1822:2019 (ISO 29463-5:2018)
Report number: NET 200701 - PT1

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Filter & Aerosol Technologie GmbH

Data tables, new filter element

Table 2: Efficiencies and lower limit of 95%-level of confidence

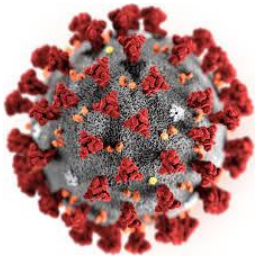
Particle size [µm]	Efficiency [%]	Efficiency, 95% min [%]	Penetration [%]	Penetration, 95% [%]
0,026	>99,99995	*	<0,00005	*
0,029	>99,99995	*	<0,00005	*
0,034	>99,99995	*	<0,00005	*
0,039	>99,99995	*	<0,00005	*
0,045	>99,99995	*	<0,00005	*
0,052	>99,99995	*	<0,00005	*
0,060	>99,99995	*	<0,00005	*
0,070	>99,99995	99,99991	<0,00005	0,00009
0,081	>99,99995	99,99992	<0,00005	0,00008
0,093	>99,99995	99,99993	<0,00005	0,00007
0,108	>99,99995	99,99993	<0,00005	0,00007
0,124	>99,99995	99,99992	<0,00005	0,00008
0,143	>99,99995	99,99992	<0,00005	0,00008
0,166	>99,99995	99,99992	<0,00005	0,00008
0,191	>99,99995	99,99993	<0,00005	0,00007
0,221	>99,99995	99,99993	<0,00005	0,00007
0,255	>99,99995	99,99993	<0,00005	0,00007
0,294	>99,99995	99,99994	<0,00005	0,00006
0,340	>99,99995	99,99997	<0,00005	0,00003
0,392	>99,99995	99,99996	<0,00005	0,00004
0,453	>99,99995	99,99994	<0,00005	0,00006

Comment: The setup was made for an expected filter grade of H14. But even with 10 scans on the downstream side we got only very less particle counts. In the smaller and larger particle size ranges zero particles were detected. The E95% values are calculated based on the Poisson distribution in which a minimum of 3,7 particles is assumed (instead of 0). Therefore these values >70 nm are not reported. To measure exactly the efficiency in U16 range an other detector with higher sampling volume or a much smaller particle size range would be needed (if using SMPS).

fiatec Filter & Aerosol Technologie GmbH, Burgkunstadter Str. 3, 95336 Mainleus, Germany

SARS-COV-2
VIRUS TEST

Test made by credited laboratory to test filtration efficiency with SARS-Cov-2 virus



Here as follow an extract from the original test report:

INTRODUCTION

In agreement with the customer, the testing activity has been performed on the primary filter of the device.

It is a cylindrical filter with an overall area of 8 m^2.

The tests carried out are indicated below:

1. The filtration capacity of the several test pieces used has been verified; this deals with the evaluation of the particle size produced by a contaminated aerosol filtered by the system according to UNI EN 29463-5/2018.
2. Following the principles of the first test, the potential presence of the virus on plates specifically positioned between the layer and an air sampler used in the laboratory has been verified.

The strain used for this test is indicated below:

COVID-19 (SARS- CoV2)	
STRAIN	Riboviria
ORDER	Nidovirales
CLASS	Coronaviridae
GENUS	Betacoronavirus
SPECIES	COVID 19

SARS-COV-2 VIRUS TEST

TEST ACTIVITY DESCRIPTION

A MET ONE GT 526S, ser. U 15396 optical photometer has been used for reading the particulate. The particle size range taken as a reference was between 1 µm and 5µm; the particles are commonly emitted in aerosols by people, for example during their speech.

They are the most dangerous particles since they remain in the air for longer duration after their emission; they remain embedded in the "breath" which has pushed them outside making it easier to breath them in if you are near the person who has emitted them. The aerosol seems to remain in the air, especially in a closed environment, for a variable period of time up to few hours.

The droplets with a greater diameter (those commonly produced by sneezing are greater than 5 µm) tend to fall to the ground at variable distances according to their dimension, the speed they are emitted and the environmental conditions (airflow, temperature and relative humidity) which can also influence the mass through the evaporation. They tend to fall to the ground within 1÷2 meters and they tend to stop in the upper airway (nose and oropharynx) if they are breathed in. The data obtained are indicated below according to the sizes considered:

	Particle size		
	1 µm	2 µm	5 µm
Pleated layer	99.9	99.9	99.9
	99.9	99.9	99.9
	99.8	99.9	99.9
	99.8	99.8	99.9
	99.8	99.8	99.9
Average:	**99.8**	**99.9**	**99.9**

CONCLUSIONS

The tests carried out show that the filtration system examined is able to limit the presence of airborne viruses. The activity is performed mechanically, that is for entrapment of airborne particles.

Frosinone, 21/06/2021

>99%

SARS-Cov-2