



Test of respiratory masks better than the standard. Exact analysis of filter mask efficiency from 100 nm up to 40  $\mu\text{m}$ . SARS-CoV-2 size approx. 120 nm - 160 nm.

## Description

The PMFT 1000 tests respirators better than the standard with additional accurate analysis of filter mask efficiency for SARS-CoV-2 (size approximately 120 nm to 160 nm). 8 size channels for 100 nm and 180 nm efficiency.

In addition, the PMFT 1000 meets the requirements for respirators specified by the **CCF (Covid Certified Filter) quality seal**<sup>1</sup>.



The PMFT 1000 is equipped with aerosol generators for measuring penetration with oil and salt. Measurement procedures for quick quality control (short test) or for testing according to standard (exposure test) are supplied.

Operation and automatic printout of the measurement results are therefore easy even for inexperienced users.

The measurement of total penetration and penetration via particle size is carried out with the high-precision Promo 1000 aerosol photometer.

The size distribution of the test aerosol according to the standard is as follows:

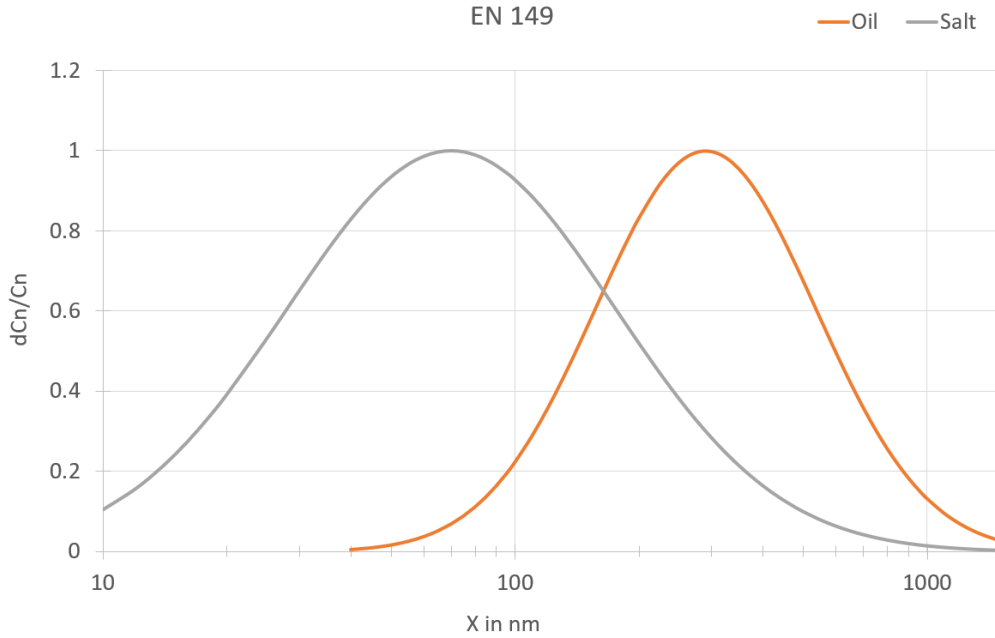
### EN 149:

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<sup>1</sup>CCF-Siegel: <https://www.ccf-quality.com/>

Oil: Media diameter 290 nm | Geom. standard deviation 1.85

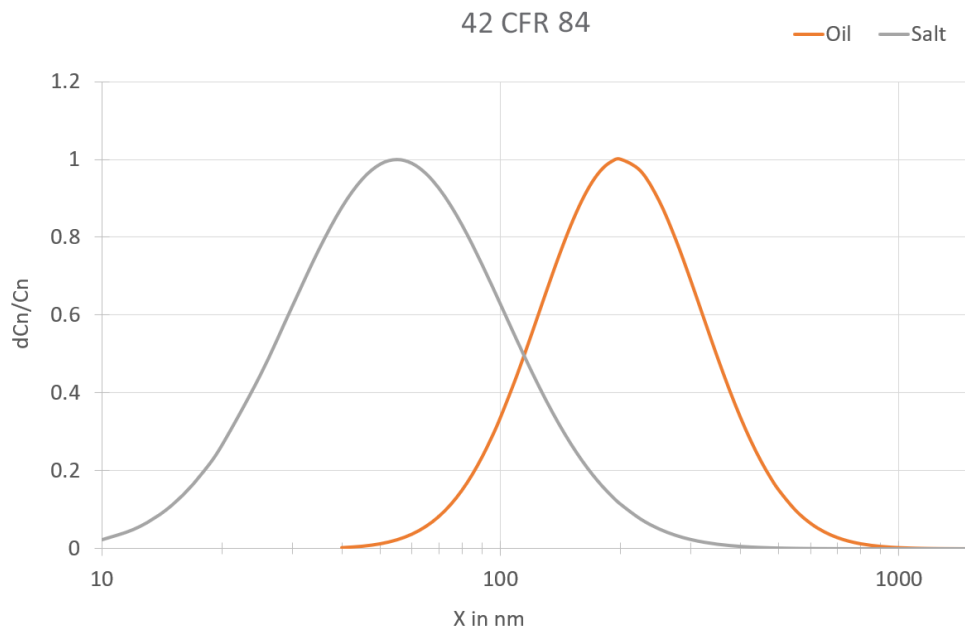
Salt: Media diameter 70 nm | Geom. standard deviation 2.5



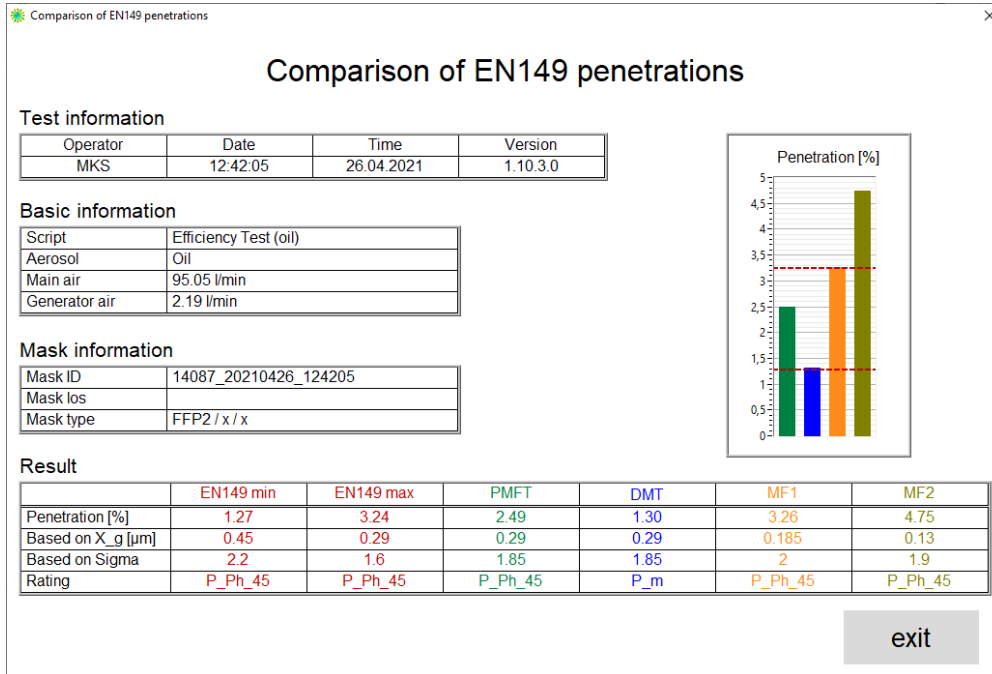
#### 42 CFR 84 / GB 2626:

Oil: Media diameter 200 nm | Geom. standard deviation 1.6

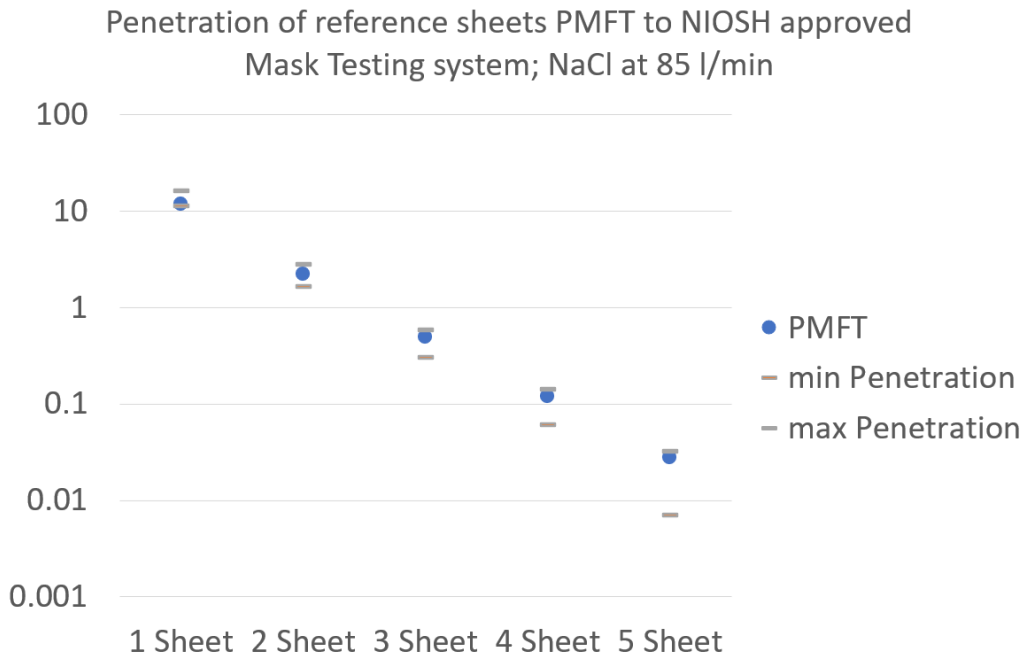
Salt: Media diameter 55 nm | Geom. standard deviation 1.86



Based on the measurement of particle penetration via particle size, the PMFT can also be used to view the tolerances in the particle size distribution according to En 13274-7 as min./max. penetration values. In addition, comparative values to other manufacturers are possible (option).



The comparison with other standards (42CFR84/NIOSH) is also easy with the 42CFR84 upgrade KIT.



## Benefits

- Test rig working principle better than EN 143, EN 149 and EN 13274-7
- Equivalent to GB 2626, 42 CFR 84 and ASTM 2299-3 by additional software option
- Test of community masks equivalent to CWA 17553
  
- Meets the requirements for respirators specified by the **CCF (Covid Certified Filter) quality seal**<sup>2</sup>
- Includes two Aerosol generators for oil and NaCl
  
- Testing of fractional efficiency, e.g. efficiency in whole size range of 100 nm up to 40  $\mu\text{m}$
- Exact analysis of filter and filter mask efficiency for SARS-CoV-2 (size approx. 120 nm up to 160 nm) in the size range between 100nm and 180 nm we have 8 size channels
- Future proof: Works with any kind of aerosol without adjustments
- Further measurement of differential pressure, e.g. as well within different face velocities to simulate measurement of breath resistance
  
- Face velocity adjustable between 1.5 - 70 cm/s
- Product capable of fast quality assurance AND continuous optimization in RD (display of size distribution)
- Individual face mask adapter for your product
- Attractive 2 years maintenance package for availability of test rig

### The software extension additionally offers:

- Display of penetration results of the entire tolerance range of the size distribution according to EN 13274-7
- Allows the comparison of different test institutes and test systems
- Facilitates certification
- Shows wide range of standards. Depending on the test operation - i.e. particle size distribution of the test aerosol - one and the same mask can perform very well or fail the test

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<sup>2</sup>CCF-Siegel: <https://www.ccf-quality.com/>

## Datasheet

<i>Parameter</i>	<i>Description</i>
<b>Measurement range (size)</b>	0,10 – 40 $\mu\text{m}$
<b>Volume flow</b>	1 – 27 $\text{m}^3/\text{h}$ (pressure mode)
<b>Power supply</b>	115/230 V, 50/60 Hz
<b>Dimensions</b>	Approx. 600 • 1,800 • 900 mm (W • H • D)
<b>Installation conditions</b>	10 – 40 °C
<b>Test conditions according to standard</b>	19 – 23 °C
<b>Inflow velocity</b>	3,5 – 70 cm/s (others on request)
<b>Differential pressure measurement</b>	0 – 1200 Pa
<b>Test area of the medium</b>	
	100 $\text{cm}^2$
<b>Aerosols</b>	Salze (z. B. NaCl, KCl), Flüssigaerosole (z. B. DEHS), Latexpartikel (PSL)
<b>Compressed air supply</b>	6 – 8 bar

## Applications

- Test of respiratory masks
- Exact analysis of filter mask efficiency for e.g. Corona Virus
- Filter testing for HEPA quality

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	EN 149	EN 13274-7	EN 13274-7	GB 2626	GB 2626	42 CFR 84	42 CFR 84
<b>Aerosol</b>	see EN 13274-7	NaCl	PaO	NaCl	PaO/DOP	NaCl	DOP
<b>Mean diameter</b>	see EN 13274-7	0.06 - 0.1 $\mu\text{m}$	0.29 - 0.45 $\mu\text{m}$	0.055 - 0.095 $\mu\text{m}$	0.165 - 0.205 $\mu\text{m}$	0.055 - 0.095 $\mu\text{m}$	0.165 - 0.205 $\mu\text{m}$
<b>Standard deviation</b>	see EN 13274-7	2 - 3	1.6 - 2.2	< 1.86 (by additional software module)	< 1.6 (by additional software module)	< 1.86 (by additional software module)	< 1.6 (by additional software module)
<b>Concentration</b>	see EN 13274-7	4 - 12 mg/m <sup>3</sup>	15 - 25 mg/m <sup>3</sup>	< 200 mg/m <sup>3</sup>	(50 mg/m <sup>3</sup> ) < 200 mg/m <sup>3</sup>	< 200 mg/m <sup>3</sup>	< 200 mg/m <sup>3</sup>
<b>Discharge</b>	-	-	-	required	required	required	required
<b>Air flow</b>	see EN 13274-7	95 l/min	95 l/min	85 ± 4 l/min	85 ± 4 l/min	85 ± 4 l/min	85 ± 4.25 l/min
<b>Temperature</b>	see EN 13274-7	22 ± 3 °C	-	25 ± 5 °C	25 ± 5 °C	25 ± 5 °C	25 ± 5 °C
<b>Rel. humidity</b>	see EN 13274-7	< 40 %	-	20 - 40 % (by compressed air)	-	20 - 40 % (by compressed air)	20 - 40 % (by compressed air)
<b>Measurement device</b>	see EN 13274-7	Sodium flame photometer	Light scattering photometer	particle detector	particle detector	Light scattering photometer	Light scattering photometer
<b>Measuring time</b>	see EN 13274-7	30 s	30 s	lowest eff. during loading	lowest eff. during loading	lowest eff. during loading	lowest eff. during loading
<b>Pause time</b>	see EN 13274-7	180 s	180 s	lowest eff. during loading	lowest eff. during loading	lowest eff. during loading	lowest eff. during loading
<b>Exposition</b>	120 mg	120 mg	120 mg	200 ± 5 mg	200 ± 5 mg	200 ± 5 mg	200 ± 5 mg
<b>PMFT remarks</b>	O.K.	O.K.	O.K.	O.K. with upgrade KIT	O.K. with upgrade KIT	O.K. with upgrade KIT	O.K. with upgrade KIT

Table 2: Overview of standards for face mask penetration testing