CIF 1000

For standard tests on automotive cabin air filters according to DIN 71460-1 and ISO/TS 11155-1, Palasoffers the CIF 1000 test stand with the Promo ® 1000[1] .

OPERATION PRINCIPLE

STANDARD TESTS ON MOTOR VEHICLE PASSENGER COMPARTMENT FILTERS

Palas® offers the CIF 1000 test rig with the Promo® 1000 unit for standard tests on motor vehicle passenger compartment filters in accordance with DIN 71460-1 and ISO/TS 11155-1.

The volume flow is automatically regulated and adjustable from 60 to 800 m^3/h. With the CIF 1000, the fraction separation efficiency and the burden on the complete filters or filter media are measured and evaluated. Particle dosing for the filter test is performed with the brush generator RBG 1000[2] , which has been internationally established for over 30 years.

On the CIF 1000, overall and fraction separation efficiency are determined with the high-resolution light scattering spectrometer Promo ® 1000[3] . This allows reliable tests to determine the separation efficiency and burden tests to be performed across the entire measurement range for all particle sizes. The advantage of the Promo® 1000 is the larger measurement range for particles from 120 nm.

Following ISO/TS 11155-1, the test rig is equipped with the salt aerosol generator AGK 2000[4] . In the testing conduit, filter media up to a size of approx. 220 x 500 mm can also be tested under the conditions stated above. To test the influence of real ambient conditions on the separation behavior of filters, Palas® offers an upgrade to the CIF test rig with climate technology components to adjust the temperature between +18 °C and +90 °C and the relative humidity between 30% and 70%.

As an option, the test rig can be upgraded after providing the measuring equipment for gas analysis to investigate adsorption and desorption dynamics following DIN 71460- 2 and ISO/TS 11155-2.

[1] Promo® 1000: https://palas.de/product/promo1000
[2] RBG 1000: https://palas.de/en/product/rbg1000
[3] Promo® 1000: https://palas.de/product/promo1000
[4] AGK 2000: https://palas.de/product/agk2000

The CIF 1000 is equipped with a high-pressure ventilator, which can be throttled on the pressure side with infinitely variable adjustment and is frequency-controlled and can be automatically regulated via the FTControl filter test software to regulate the volume flow.

Furthermore, sensor data such as the volume flow, temperature, relative humidity, and differential pressure at the filter are also recorded automatically during the filter test. The aerosol generators and the corona discharge can be actuated via the FTControl software.

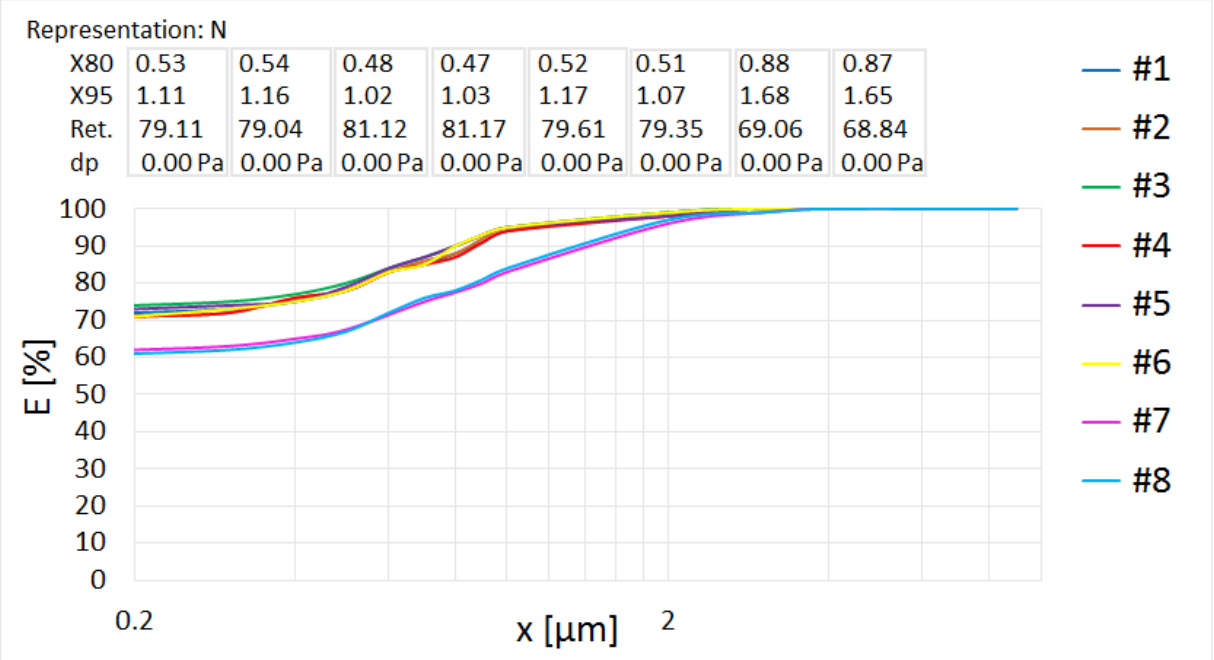

Fig 1: Example showing a comparison of fraction separation efficiencies

- Clear demonstration of the separation efficiency of your filters or filter media throughout the entire measurement range from 120 nm to 40 μm with the Promo® 1000 system
- Highest measurement reproducibility and repeatability highlight even nuanced differences in the separation efficiency
- Short measurement times of around 2 minutes per separation efficiency measurement thanks to optimized application
- Simple comparison of separation efficiency curves, calculation of mean values also possible

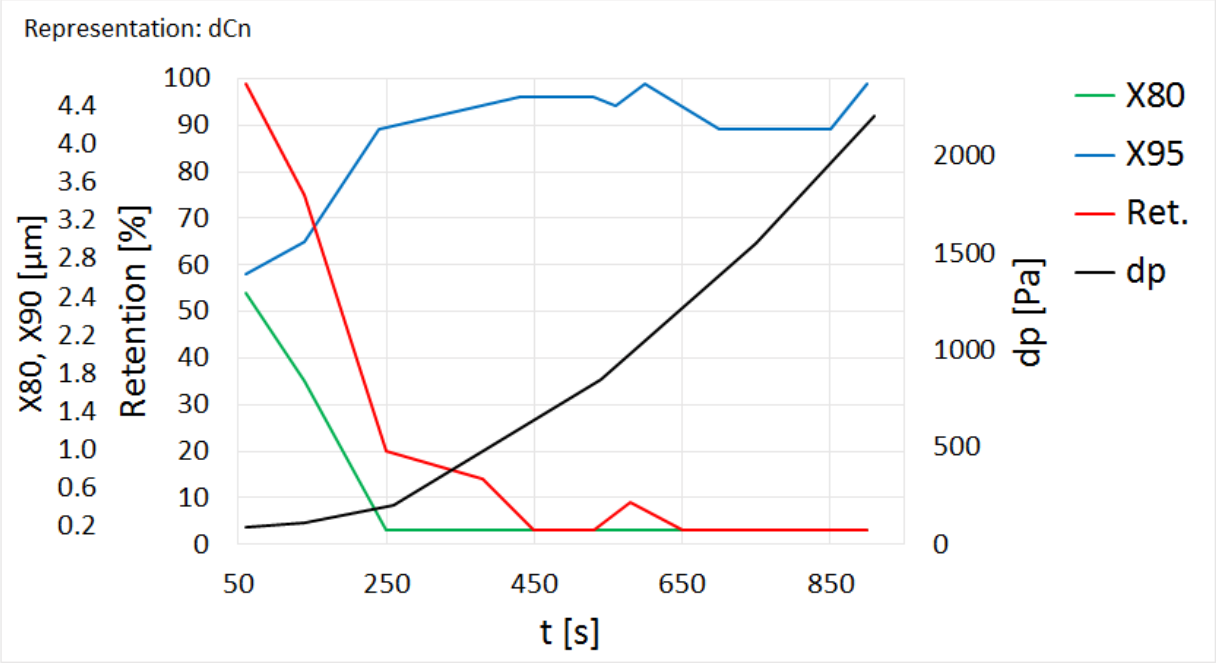

Fig 2: Example of the hold time measurement

- Performance of measurements of the fraction separation efficiency during dust application; pressure loss or measurement time can be pre-selected as the abort criterion
- Determination and representation of the pressure loss and retention curves in the diagram and table form.
- The representation of the particle diameters at 80% and 90% separation provides additional information.
- Comparison of the fraction separation efficiencies during the different loading steps
- Shortening of the measurement times, e.g., through increased aerosol concentration

BENEFITS

- Particle measurements from 120 nm
- Measurement and evaluation of fraction separation efficiency and burden
- Automatic data acquisition for barometer pressure, temperature, humidity, differential pressure
- Optional temperature control (+18°C to +90°C) and moisture control (30 – 70%)
- Automatic actuation of all test rig components
- Automatic performance of the measurement processes
- Individual programming of measurement processes for filter testing using the FTControl software
- Separate measurement and analysis parts – this saves time and money, as the analysis can be performed while the measurement is still on-going
- Printouts and saving of complete test records
- Easy access to all data for the recorded measurement signals from the up to 6 external sensors
- Low-maintenance
- Easy operation
- Reliable operation
- The unit will reduce your operating costs

NORMS AND CERTIFICATES

DIN 71460, ISO/TS 11155

DATASHEET

Measurement range (size)	0.12 – 40 μm
Volume flow	60 m^3/h – 800 m^3/h (cycle operation)
Material	Stainless steel V2A, 2 mm
Temperature regulation	+18 °C – +90 °C
Luftfeuchteregelung	30% – 70%
Temperatur- und Feuchtesensor	Measuring range: -20°C - +80°C, 0 - 100 % rH, Accuracy: ± 0.1°C (20°C), ± 1 % rH (0 - 90 % rH), ± 2 % rH (90 - 100 % rH)
Barometric pressure gauge	Measuring range: 600 - 1,100 hPa, Accuracy: ± 0.10 hPa
Differential pressure gauge	Measuring range: < 2,500 Pa, Linearity error: < 0.2 % of final value
Measurement of the air velocity	Measuring range: 0.5 - 40 m/s, Accuracy: < +/- 0.05 m/s (up to 20 m/s), < +/- 0.08 m/s (20 - 30 m/s), < +/- 0.1 m/s (30 - 40 m/s)
Preconditions	3 phases, 400 V, neutral, earth connection of approx. 3 KW and provision of pressurized air max. 8 bar
Dimensions	Test rig: 2,800 • 1,000 • 4,200 mm (H • W • D), Filter holder: 300 • 600 mm (H • W) (filter and others on request)

APPLICATIONS

- Complete filter test according to DIN 71460-1 & ISO/TS 11155-1
- Test of filter media according to DIN 71460-1 & ISO/TS 11155-1
- Test of other complete filters and filter media

Mehr Informationen:
https://www.palas.de/en/product/cif1000