

Certificate-No.: 2021 01 17204 / As Left Calibration

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DILUTION SYSTEM SERIES DIL 550

Serial no.: 550 03 07 327

Identification
customer: C23

Ambient conditions (identical throughout the entire procedure)

Barometric pressure: 1013.0 hPa

Temperature: 24.5 °C

Weight of the filter cartridge: 150.78 g

Total flow: 28.3 l/min

Adjusted dilution ratio: 100 : 1

Leak test: ☒

Overpressure protection: ☒

Particle emission test: ☒

Test run: ☒

The instrument is within the specified tolerance: ☒

Sensor values

Offset [V]	Operating point [V]
0.512	2.441

The offset value characterises the offset sensor output when no particle counter is on-line.

The operating point value is the sensor output when the calibrated capillary flow is realised and is defined by the total flow and the adjusted dilution ratio. The dilution ratio was adjusted by carrying out particle measurements on the TOPAS test bench for clean room equipment DCR 171.

Comment:

Dresden, 2021-01-27

tested by: Josef Perner

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Undiluted test aerosol: 159546 #/ft³

Standard deviation (5 Measurements): 0.5 %

Measured dilution ratios

Measurement No.:	Diluted aerosol	Calculated dilution factor	Deviation %
1	1627	98.1	-1.9
2	1640	97.3	-2.7
3	1594	100.1	0.1
4	1616	98.7	-1.3
5	1616	98.7	-1.3
Average value		98.6	-1.4%

The test aerosol for verification was a latex aerosol generated by a TOPAS ATM Series aerosol generator. The sampling is carried out isokinetic with the particle counter after a mixing zone. The calculated dilution ratio must be within $\pm 5\%$ of the set value.

Following measuring instruments were used

Type	Manufacturer	Identification	last calibration	Certificate number	next calibration
Digital pressure instrument DPI 705	GE Sensing	705 690 08	11/2019	2019 12 15300	11/2021
Digital voltmeter Fluke 79	Fluke	55060193	05/2019	2019-3854	05/2021
Laboratory scale ED 822	Sartorius	18607164	08/2019	807B699	08/2021
Laminar flow meter FCO96 C-2L	Furness Controls	0109308 / -307	04/2020	DFCG16308	04/2022
Laminar flow meter FCO96 F-30L	Furness Controls	0109305 / -306	04/2020	DFCG16310	04/2022
Particle counter Abakus (0.1 cf/min)	Klotz	Ama 10021	03/2020	20030212	03/2021 ☐
Particle counter LAP 340 (1 cf/min)	Klotz	340 10 15 290	03/2020	20020213	03/2021 ☐
Particle counter LAP 340 (1 cf/min)	Klotz	340 17 15 666	03/2020	20030217	03/2021 ☒

Last and next calibration dates are end-of-month dates.

Verification and calibration are done according to TOPAS internal quality management procedure. The manufacturer guarantees that the instrument fulfils the technical specification as defined in the instruction manual.

