C23

TOPAS®

Certificate of Instrument Testing

Certificate-No.: 2020 02 15663 / As Left Calibration

certificate

DILUTION SYSTEM SERIES DIL 550

Serial no.: 550 03 07 327

Identification customer: C23

Ambient conditions (identical throughout the entire procedure)

Barometric pressure: 1008.8 hPa

Temperature: 23.5 °C

Weight of the filter cartridge: 150.77 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]
0.505	2.492

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, 2020-02-21 tested by: Josef Perner

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Undiluted test aerosol: 168198 #/ft³

Standard deviation (5 Measurements): 0.2 %

Measured dilution ratios

Measurement No.:	Diluted aerosol	Calculated dilution factor	Deviation %
1	1633	103.0	3.0
2	1668	100.8	0.8
3	1713	98.2	-1.8
4	1729	97.3	-2.7
5	1743	96.5	-3.5
	Average value	**99.1**	**-0.9%**

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 ± 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 FCO C-2L	Furness Controls	0109308 / -307	04/2018	DFCG13989	04/2020	
Laminar flow meter FCO96 F-30L	Furness Controls	0402110 / -305	04/2018	DFCG13988	04/2020	
Particle counter Abakus (0.1 cf/min)	Klotz	Ama 10021	03/2019	19030171	03/2020	☐
Particle counter LAP 340 (1 cf/min)	Klotz	340 10 15 290	03/2019	19030172	03/2020	☒
Particle counter LAP 340 (1 cf/min)	Klotz	340 17 15 666	03/2019	19030176	03/2020	☐

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.

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