CALIBRATION CERTIFICATE

Certificate Number 830

Model:	S3100
Serial Number:	190304023
Sensor ID:	190304-023
Customer name:	Balkan Pharmaceuticals
Date of Calibration	September 27, 2024
Next calibration on this instrument is due:	September 27, 2025
Calibration Method	Calibration has been accomplished as described in ISO 21501-4:2018. All work performed is in accordance with Lighthouse Worldwide Solutions Calibration Procedure Document 462810617-1 and is recorded and maintained as such.
Traceability	The measurements have been executed using standards traceable to the International System of Units in order to to ensure continued accuracy and measuremenet traceability within the level of uncertainty reported by our laboratory.
Uncertainty	The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of k = 2, which provides a confidence level of approximately 95%. The values and test criteria are applied using Simple Acceptance; Shared Risk approach.
Results	This certifies the above named instrument conforms to the original specifications in effect at date of manufacture and test.

Environmental Conditions Ambient temperature 24.4 °C Relative humidity 53 %

Test Equipment

Standards	Model	Mfg	Serial#	Cal Date	Cal Due
DMM	P3320	Peak Tech	140821704	13-06-24	13-06-25
MCA	8000D	AmpTek	1116	02-09-24	02-09-25
Flow Meter	DCL-H	Bios	7065	24-05-24	24-05-25
Test Standard	Solair	LWS	160699001	29-11-23	29-11-24

Particle Size Standards

Nominal Size	Particle Size	Tolerance (nm)	Lot No.	Manufacturer	Expiration Date
0.30µm	0.30µm	+/-3	257546	Thermo Scientific	01-08-25
0.40µm	0.40µm	+/-3	258557	Thermo Scientific	01-09-25
0.50µm	0.51µm	+/-4	255494	Thermo Scientific	01-06-25
1.00µm	1.03µm	+/-6	260019	Thermo Scientific	01-10-25
3.00µm	2.92µm	+/-15	257549	Thermo Scientific	01-08-25
5.00µm	5.02µm	+/-20	276198	Thermo Scientific	01-01-27
10.00µm	9.99µm	+/-40	261682	Thermo Scientific	01-12-25

Counting Efficiency Particle Size Standards

Nominal Size	Particle Size	Tolerance (nm)	Lot No.	Manufacturer	Expiration Date
0.30µm	0.30µm	+/-3	257546	Thermo Scientific	01-08-25
0.50µm	0.51µm	+/-4	255494	Thermo Scientific	01-06-25

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CALIBRATION RESULTS AS LEFT

Certificate Number 830

Size Calibrations as Left

Channel	Chnl Size	Threshold	Expanded Uncertainty	As Left Size Error
1	0.30µm	54mV	0.016 µm	0%
2	0.50µm	431mV	0.01 µm	0%
3	1.00µm	986mV	0.015 µm	0%
4	3.00µm	3080mV	0.033 µm	0%
5	5.00µm	3580mV	0.041 µm	0%
6	10.00µm	4503mV	0.092 µm	0%

Measurements as Left

Nominal Flow Rate:	Measured Flow:		Expanded Uncertainty	Result
28.30 LPM	28.32 LPM	(limit ±5% of nominal)	0.8L/min	Pass

False Count Rate:

JIS B 9921 Zero Count	Observed Cts:	0	(≤ 1 ct max / 5 min.)		Pass
ISO21501-4 False Count Rate	Observed Cts:	0	Upper confidence level	21	Particles/m3

					Expanded Uncertainty	Result
Counting Efficiency 50%:						
Size	0.303	µm	41.0%	(limit 30% - 70%)	4.8 %	Pass
Counting Efficiency 100%:						
Size	0.508	µm	99.4%	(limit 90% - 110%)	29.8 %	Pass
Size Resolution:						
Size	0.401	µm	11.48%	(limit 15%)	1.5 %	Pass

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Echipamente pentru detectia gazelor toxice si explozive

CALIBRATION RESULTS AS FOUND

Certificate Number 830

Size Calibrations as Found

Channel	Size(µm)	As Rec'd Threshold Settings	As Rec'd size (µm)	Percent size error (%)	Percent size error tolerance	Expanded Uncertainty	Pass/Fail
1	0.3	54	0.300	0.0%	+/- 10%	0.016 µm	Pass
2	0.5	431	0.499	-0.2%	+/- 10%	0.01 µm	Pass
3	1	1048	1.054	5.4%	+/-10%	0.015 µm	Pass
4	3	3023	2.844	-5.2%	+/-10%	0.033 µm	Pass
5	5	3657	5.330	6.6%	+/-10%	0.041 µm	Pass
6	10	4506	9.989	-0.1%	+/-10%	0.092 µm	Pass

Measurements as Found

Nominal Flow Rate:	Measured Flow:		Expanded Uncertainty	Result
28.30 LPM	27.16 LPM	(limit ±5% of nominal)	0.8 L/min	Pass

False Count Rate:					
JIS B 9921 Zero Count	Observed Cts:	0	(≤ 1 ct max / 5 min.)		Pass
ISO21501-4 False Count Rate	Observed Cts:	0	Upper confidence level	21	Particles/m3

Counting Efficiency 50%:					Expanded Uncertainty		Result
Size	0.303	µm	37.0%	(limit 30% - 70%)	3.4	%	Pass
Counting Efficiency 100%:							
Size	0.508	µm	88.7%	(limit 90% - 110%)	4.9	%	Fail

Size Resolution:							
Size	0.401	µm	11.48%	(limit 15%)		1.5 %	Pass

Signature:

Calibration Tech/Engineer: Olga Pirva

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