

Since 1925

KEYSTONE

ADJUSTABLE CAP COMPANY INC.

1591 Hylton Road, Pennsauken, NJ 08110

856-663-5740 • Fax 856-663-6075

800-663-5439 • Fax 800-663-5432

E-Mail • info@keystonecap.com

Keystone Adjustable Cap Co., Inc.
1591 Hylton Road
Pennsauken, NJ 08110

Re: Helmke Drum Testing

Article 1: #110 NW1-21 Bouffant Cap (6 samples)

Article 2: #112 NW1 Beard Cover (6 samples)

Purchase Order # 9435

Equipment:

Helmke Drum

Particle Counter

Hach Ultra Model # 2400

Serial #080601011

Calibration Date: 06/23/2008

Procedure:

IEST RP 003.3 Appendix B2.5 Helmke Drum Test

Six (6) each of the referenced articles were inserted in the Helmke Drum

Results:

Article 1: #110 NW1-21 Bouffant Cap (Six caps combined)

Average Particle Emission Rate (particles/minute) = 33 particles/minute @ .5 micron

Article 2: #112 NW1 Beard Cover (Six covers combined)

Average Particle Emission Rate (particles/minute) = 18 particles/minute @ .5 micron

Attachments:

Hach Ultra Model 2400 Calibration Certificate

Test Tape Copy

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CERTIFICATE OF CALIBRATION

This airborne particle counter was size-calibrated per the requirements of ISO 21501-4:2007(E). ISO calibrations comply with paragraph 4 of this ISO standard. HUA calibrations ensure proper operation of the instrument, and may include portions of ISO 21501-4:2007(E) (refer to Supplemental Data portion of this document). Calibration spheres and test equipment used in this calibration are traceable to the International System of Units. All work was performed in accordance with ISO 9001:2000 and the Hach Ultra Quality Manual, QA-1001, Revision J (USA only). Calibration accuracy may vary over time and usage, but under normal operating conditions can be expected to meet or exceed published specifications for a period of one year. Calculated particle size uncertainty is 4% (k=2).

General Information

Manufacturer/Lab

Hach Ultra Analytics
 481 California Ave.
 Grants Pass, OR 97526

Instrument Information

<u>Counter Model</u>	2400	<u>Station ID</u>	Air One	<u>Temperature</u>	30 °C
<u>Counter Serial</u>	080601011	<u>Calibration Date</u>	2008-Jun-23	<u>Relative Humidity</u>	48 %
<u>Sensor Model</u>	AIR			<u>Nominal Flow</u>	28.300 LPM
<u>Sensor Serial</u>	061308A101			<u>Laser Current</u>	56 mA
<u>HUA Procedure</u>	CO88149-1 REV B				

Performance Information

Test Name	Test Result	Criteria	Pass/Fail
ISO-21501 Flow	28.3 LPM	±5%	Pass
HUA Noise	35.4 mV	N/A	N/A
HUA Peak to Valley	2.3:1	N/A	N/A
ISO 21501 100% Counting Efficiency	110.0%	100±10%	Pass
ISO-21501 False Count Rate	0 particles in 0.42 m ³	7.07 particles/m ³	Pass

Calibration Equipment

Type	Model	Serial	Cal Due Date
STD	3313	CTR 020	2008-Aug-26
PHA	Core Counter PHA	MET 837	2008-Dec-09
Thermometer	03313	MET 507	2008-Oct-23
Flow Meter	4043	MET 562	2009-Apr-02
DMM	Fluke 45	MET 317	2008-Jul-26

Calibration Information

Channel	Size (µm)	Threshold (mV)	Particle Size (µm)	Mfg	Lot Number	Expiration Date
1	0.30	55.30	0.300	Duke	32011	2010-Jul-30
2	0.50	550.70	0.499	Duke	32579	2010-May-30
3	1.00	731.70	1.020	Duke	32914	2010-Sep-30
4	5.00	2,000.00	4.900	Duke	32174	2010-Aug-30