HIGH-PURITY STANDARDS
www.highpuritystandards.com

P.O. Box 41727
Charleston, SC 29423
Phone (843) 767-7900
Fax (843) 767-7906

Certificate of Analysis

Product Description:

Name:	Cadmium	Source Material:	Cadmium Metal
Part Number:	**10008-2**	Material Purity:	99.999%
Lot Number:	**SAMPLE**	Matrix:	2% (v/v) HCl

Certified Value: 1000 µg/mL ± 3 µg/mL

The Certified value is based on gravimetric and volumetric preparation, and confirmed against SRM 3108 (lot number 130116) by inductively coupled plasma optical emission spectrometry (ICP-OES) using an internal laboratory-developed method. The uncertainty in the certified value is calculated for a 95% confidence interval and coverage factor *k* is about 2.

Density: 1.005 g/mL ± 0.002 g/mL @ 22.3ºC

Uncertified Values:

Trace Metal Impurity Scan: The data reported are based upon a scan of this specific lot at 1000 µg/mL via ICP analysis. The values are reported in µg/L.

Ag	<	2	Cu	<	0.1	Li	<	0.02	Rb	<	0.02	Th	< 0.02
Al	<	0.1	Dy	<	0.02	Lu	<	0.02	Re	<	0.02	Ti	< 0.02
As	<	0.3	Er	<	0.02	Mg	<	0.5	Rh	<	0.02	Tl	< 0.02
Au	<	0.02	Eu	<	0.02	Mn	<	0.1	Ru	<	0.02	Tm	< 0.02
B	<	1	Fe	<	1	Mo	<	0.02	Sb	<	0.02	U	< 0.1
Ba	<	0.02	Ga	<	0.02	Na	<	3	Sc	<	0.02	V	< 0.05
Be	<	0.1	Gd	<	0.02	Nb	<	0.02	Se	<	0.1	W	< 0.02
Bi	<	0.1	Ge	<	0.02	Nd	<	0.02	Si	<	5	Y	< 0.02
Ca	<	1	Hf	<	0.02	Ni	<	0.02	Sm	<	0.02	Yb	< 0.02
Cd		M	Ho	<	0.02	Os		na	Sn	<	1	Zn	< 2
Ce	<	0.02	In	<	0.02	Pb	<	1	Sr	<	0.02	Zr	< 0.02
Co	<	0.05	Ir	<	0.02	Pd	<	0.02	Ta	<	0.02		
Cr	<	0.1	K	<	3	Pr	<	0.02	Tb	<	0.02		
Cs	<	0.02	La	<	0.02	Pt	<	0.02	Te	<	0.02	na - not analyzed	

Preparation Information:

The standard solution is prepared using high purity materials and assayed by analytical methods for conformity prior to use. This standard was prepared using the methods developed at NIST for SRM Spectrometric Standard Solutions under appropriate laboratory conditions.

Sub-boiling distilled high-purity acid has been used to place the materials in solution and to stabilize the standard. The matrix is as noted above in 18 megaohm deionized water.

Stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. This testing includes, but is not limited to, the effect of temperature and packaging on the product.

Intended Use:

This Certified Reference Material (CRM) is intended for use as a calibration standard for the quantitative determination of cadmium, calibration of instruments such as ICPOES, ICPMS, AAS and XRF, and validation of analytical methods. It also can be used in EPA, ASTM and other methods.

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Traceability Information:

The traceability of this standard is maintained through an unbroken chain of comparisons to appropriate standards with suitable procedure and measurement uncertainties. The maintenance of the base and derived units of International System of Units (SI) with traceability of measurement results (contemporary metrology) to SI ensures their comparability over time as follows.

a. **Standard Weight and Analytical Balance**
The standard weights (NBS weights Inventory No 20231A) are calibrated every two years by South Carolina Metrology Laboratory that is a participant in "NIST Weights and Measures Measurement Assurance Program" with a certificate of measurement traceability to NIST primary standards.
The balances are calibrated yearly by the ISO 17025 accredited metrology service, and are verified weekly by an in-house method using standard weights.

b. **Volumetric Device**
The calibration of volumetric vessels is checked annually using the ASTM method E542.

c. **Thermometer**
The standard thermometers are calibrated every year by the ISO 17025 accredited metrology service. The thermometers used in-house are verified against the standard thermometers yearly.

d. **Calibration Standards:**
The Calibration Standard is directly traceable to SRM 3100 Series Spectrometric Standard Solutions.

Packaging and Storage Conditions:

The standard is packaged in a pre-cleaned polyethylene bottle. To maintain the integrity of this product, the solution should be kept tightly capped and stored under normal laboratory conditions.

Refer to Material Safety Datasheet (MSDS) for hazardous information.

Expiration Information:

The expiry date is guaranteed to be valid for eighteen months from the shipping date provided. For this reason, standards from the same lot may have different expiration dates.

Preparation Date: **January 22, 2015**

Shipped Date:

Expiration Date:

Certificate Issue Date: **February 4, 2015**

Quality Information:

ISO/IEC 17025:2005 Accreditation
Certificate Number AT-1529

ISO Guide 34:2009 (RMP) Accreditation
Certificate Number AR-1436

Angel Sellers
Quality Manager