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CERTIFICATE OF ANALYSIS

Product:	Standard Solution of: Cadmium (Cd) concentration 1.000 g/l in 2% Nitric Acid (HNO3)	Batch 18333801
CA0045		Quality Release Date 29.09.2017
		Expiry Date: 09.2020

Analysis	Batch Value (mg/l)	Specifications (mg/l)
concentration (Cd **)**	**998.7 ± 4.0** (y)	**1000**

Density: 1.012 g/cm^3 at 20 °C

Preparation
This certified reference material is produced in a clean room, using a highest purity starting material, acid from sub-boiling and 0.055 µS/cm deionized water. The low-density polyethylene bottle was decontaminated by leaching with 0.055 µS/cm deionized water and triple rinse.
The instructions of ISO Guide 34 were considered for the preparation of this solution.
Contains: Cd 99.999%

Traceability
This standard is traceable to NIST SRM No 3108 Lot 130116; NIST SRM No 3168a Lot 120629 The certified value was obtained by a weighted mean of the results of two independent methods among: Classical Volumetric, Primary Gravimetric, Instrumental (ICP/OES, ICP/MS or IC) according to calibration procedure (y) WQP 5.15.1.24
The calibration curve is drawn using a series of standard solutions prepared from a certified reference material traceable to NIST (SRM) and accredited by laboratories/producers in compliance with ISO/IEC 17025 and/or ISO Guide 34.

Uncertainty
The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor K=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA 4/02

Measurement
Batch value certified at the time of measurement.
The certified value is calculated by means of both gravimetric preparation and ICP-OES analysis.

Hazardous
The normal laboratory safety precautions should be observed when working with this standard.
Please refer to Safety Data Sheet (SDS) to further details.

Homogeneity
This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous.
To ensure sufficient homogeneity of the sample prior to use, mix thoroughly by shaking.

Storage and use
For ICP spectrometer calibration.

If stored unopened in the original packaging, this solution is stable for 3 years from the release date. Shelf life is also limited by the effect of transpiration of solvent through the unopened bottle walls at an average of <0.1% per year. Once the bottle is opened, keep tightly closed at room temperature in the original packaging. Do not pipette directly from the bottle. Do not pour the used solution back in the bottle.
This standard can be used directly or can be diluted in an appropriate high-purity matrix.
Obtained concentration (in mg/l) after dilution is a result from the multiplication of certified value of standard concentration and the volume used for dilution and divided into the final volume used for dilution.

We recommend that the material used be leached with acids.
We suggest rejecting the solution six months after opening.

This document is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31, ISO Guide 35 and Eurachem/CITAC Guides.
The product is produced by laboratory accredited to ISO Guide 34 and ISO/IEC 17025

Signature:  (M. Canet)

This certificate does not release the user from their control upon receipt of the goods. You can get a copy of any of our COA from our website: www.scharlab.com

Trace impurities in the actual solution reported in ppm:
(all values below are nominal and not certified)

Ag	<0.0038	Cu	0.01	La	<0.0024	Pt	<0.0097	Tb	<0.022
Al	<0.0018	Dy	<0.0054	Li	<0.0001	Rb	<0.063	Te	<0.031
As	<0.016	Er	<0.0035	Lu	<0.0062	Re	<0.0081	Th	<0.014
Au	<0.016	Eu	<0.0039	Mg	<0.0006	Rh	<0.0038	Ti	<0.0012
B	0.02	Fe	0.001	Mn	<0.001	Ru	<0.0089	Tl	<0.028
Ba	<0.0005	Ga	<0.020	Mo	<0.0024	S	<0.071	Tm	<0.0023
Be	<0.0001	Gd	<0.0028	Na	0.01	Sb	<0.020	U	<0.45
Bi	0.04	Ge	<0.020	Nb	<0.0066	Sc	<0.0016	V	<0.0018
Ca	0.001	Hf	<0.0032	Nd	<0.0058	Se	<0.023	W	<0.017
Cd	*	Hg	<0.024	Ni	<0.0061	Si	<0.037	Y	<0.0007
Ce	<0.0085	Ho	<0.0053	P	<0.048	Sm	<0.0058	Yb	<0.0003
Co	0.005	In	<0.098	Pb	<0.021	Sn	<0.050	Zn	0.007
Cr	<0.0014	Ir	<0.0061	Pd	<0.033	Sr	<0.00006	Zr	<0.0007
Cs	<0.05	K	<0.0095	Pr	<0.0046	Ta	<0.004		