SCP SCIENCE
Providing Innovative Solutions to Analytical Chemists

Certificate of Analysis

1.0 DESCRIPTION : ***Plasma*** **CAL – Single element ICP Standard - Second Lot**

Catalogue Number : **140-050-141PL**

Lot Number : **S240206032**

Matrix : **H2O / 0.4% F-**

Expiration Date (End of month): **March 2026**

2.0 CERTIFIED VALUES WITH ASSOCIATED UNCERTAINTY AND METALIC IMPURITIES :

Method of Analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
Trace Metal Impurities tested by ICP-MS.

Traceability: Applicable NIST Standard Reference Materials (see list below):

3101a	Al	3109a	Ca	3117a	Eu	3126a	Fe	3134	Mo	3142a	Pr	3151	Ag	3159	Th	3167a	Y
3102a	Sb	3110	Ce	3118a	Gd	3127a	La	3135a	Nd	3143	Re	3152a	Na	3160a	Tm	3168a	Zn
3103a	As	3111a	Cs	3119a	Ga	3128	Pb	3136	Ni	3144	Rh	3153a	Sr	3161a	Sn	3169	Zr
3104a	Ba	3112a	Cr	3120a	Ge	3129a	Li	3137	Nb	3145a	Rb	3154	S	3162a	Ti		
3105a	Be	3113	Co	3121	Au	3130a	Lu	3138	Pd	3147a	Sm	3155	Ta	3163	W		
3106	Bi	3114	Cu	3122	Hf	3131a	Mg	3139a	P	3148a	Sc	3156	Te	3164	U		
3107	B	3115a	Dy	3123a	Ho	3132	Mn	3140	Pt	3149	Se	3157a	Tb	3165	V		
3108	Cd	3116a	Er	3124a	In	3133	Hg	3141a	K	3150	Si	3158	Tl	3166a	Yb		

Certified Concentrations:

Si	999 ± 11	µg/ml

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) such as the SRM inherited uncertainty, weighing and dilution errors and instrument variability. The combined uncertainty ($uc= \sqrt{\Sigma u_i^2}$) has been multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

Trace Metal Impurities (µg/ml):

Ag	<0.0010	Ce	<0.0010	Gd	<0.0010	Lu	<0.0013	Pb	<0.0067	Sc	<0.0050
Al	0.0385	Co	<0.0034	Ge	0.0015	Mg	<0.0010	Pd	<0.0023	Se	<0.0185
As	<0.0050	Cr	<0.0011	Hf	<0.0500	Mn	<0.0026	Pr	<0.0010	Sm	<0.0016
Au	<0.0010	Cs	<0.0023	Hg	<0.0010	Mo	<0.0031	Pt	<0.0010	Sn	<0.0257
B	0.0586	Cu	<0.0050	Ho	<0.0014	Na	0.0764	Rb	<0.0018	Sr	0.0038
Ba	<0.0167	Dy	<0.0010	In	<0.0141	Nb	<0.0035	Re	<0.0014	Ta	0.0022
Be	<0.0014	Er	<0.0016	Ir	<0.0012	Nd	<0.0010	Rh	<0.0039	Tb	<0.0010
Bi	<0.0099	Eu	<0.0014	K	<0.3555	Ni	<0.0067	Ru	<0.0028	Te	<0.0079
Ca	0.0027	Fe	<0.0500	La	<0.0010	Os	<0.0093	S	<0.1000	Th	<0.0018
Cd	<0.0018	Ga	<0.0035	Li	<0.0042	P	<0.1119	Sb	0.0022	Ti	0.0037
Tl	<0.0010	Tm	<0.0019	U	<0.0010	V	<0.0021	W	<0.1367	Y	<0.0018
Yb	<0.0011	Zn	0.002	Zr	<0.0350						

3.0 REFERENCE VALUES:

Density: **1.002 g/ml** @ **21.7 °C**

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Yaling Sui, Chemist
Certification Date: February 09, 2024

Yaling Sui

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5.0 INTENDED USE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP.
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers.
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits.
- pH Standards: For the calibrating pH meters or for other wet chemistry applications.
- Conductivity Standards: For electrolytic conductivity measurement as a calibration standard.
- IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications.

For any inquiries, please contact **SCP SCIENCE**.

6.0 INSTRUCTIONS FOR USE:

Handling and Storage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight.

Stability: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date.

7.0 HAZARDOUS INFORMATION :

Please refer to the associated Material Safety Data Sheet (MSDS) for information regarding this product (available at www.SCPSCIENCE.com).

8.0 HOMOGENEITY:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used.

9.0 TRACEABILITY:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator.

10.0 PREPARATION*:*

For the preparation of these solutions, 18 meghom/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used.

11.0 QUALITY SYSTEM CERTIFICATIONS*:*

ISO 9001 Certification (Intertek Certificate Number 4737-5): This standard was produced in a facility which operates a **registered ISO 9001** Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration.

ISO 17025 Accreditation (ANAB Certificate Number AT-3218): SCP SCIENCE (Corporate Headquarters) operates an **ISO 17025 accredited** laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation.

ISO 17034 Accreditation (ANAB Certificate Number AR-3219): SCP SCIENCE (Corporate Headquarters) is an **ISO 17034 accredited** Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation.

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