SPEX CertiPrep®

Your Science Is Our Passion®

Speciation

Analytical Standards for Single & Dual Speciation Analysis

Speciation analysis has become common in many testing fields, including in the environmental, food and pharmaceutical testing labs. To analyze species in a sample requires Certified Reference Materials (CRMs) for sample verification and method validation. Many speciation standards are available in today's market, but most of them are not certified or analyzed with a state-of-the-art ICP, ICP-MS or LC-ICP-MS. SPEX CertiPrep offers a wide variety of speciation standards, certified to the strictest ISO Guide 34 guidelines, and tested on our own LC-ICP-MS.

For additional product information, please visit www.spexcertiprep.com/knowledge-base/speciation.

Single Speciation Standards

Description	Concentration	Volume	Matrix	Part #
Assurance Grade Arsenic (+3) Speciation Standard	1,000 µg/mL	125 mL	2% HCl	SPEC-AS3
Assurance Grade Arsenic (+3) Speciation Standard	1,000 µg/mL	30 mL	2% HCl	SPEC-AS3M
Assurance Grade Arsenic (+5) Speciation Standard	1,000 µg/mL	125 mL	H_2O	SPEC-AS5
Assurance Grade Arsenic (+5) Speciation Standard	1,000 µg/mL	30 mL	H_2O	SPEC-AS5M
Assurance Grade Chromium (+3) Speciation Standard	1,000 µg/mL	125 mL	2% HNO_3	SPEC-CR3
Assurance Grade Chromium (+3) Speciation Standard	1,000 µg/mL	30 mL	2% HNO_3	SPEC-CR3M
Assurance Grade Chromium (+6) Speciation Standard	1,000 µg/mL	125 mL	H_2O	SPEC-CR6
Assurance Grade Chromium (+6) Speciation Standard	1,000 µg/mL	30 mL	H_2O	SPEC-CR6M
Assurance Grade Selenium (+4) Speciation Standard	1,000 µg/mL	125 mL	2% HNO_3	SPEC-SE4
Assurance Grade Selenium (+4) Speciation Standard	1,000 µg/mL	30 mL	2% HNO_3	SPEC-SE4M
Assurance Grade Selenium (+6) Speciation Standard	1,000 µg/mL	125 mL	H_2O	SPEC-SE6

Organic Arsenic Speciation Standards

Description	Concentration	Volume	Matrix	Part #
Dimethylarsinic Acid Sodium Salt	10 µg/mL	30 mL	H_2O	SPEC-AS-DMA
Disodium Methylarsonate Hexahydrate	10 µg/mL	30 mL	H_2O	SPEC-AS-MMA

CERTIFIED REFERENCE MATERIALS

SPEX CertiPrep is the industry leader for over 60 years in the CRM marketplace meeting the needs of laboratories worldwide with innovation and research. Accredited by A2LA to ISO/IEC 17025:2005 & ISO Guide 34:2009. Certified by UL-DQS, ISO 9001:2008.

Speciation (cont'd)

Dual Speciation Standards				
Description	**Concentration**	**Volume**	**Matrix**	**Part #**
Dual Arsenic (+3, +5) Speciation Standard	Total As 20 µg/mL	30 mL	H_2O/tr. HCl	SPEC-DUAL-AS
Dual Selenium (+4, +6) Speciation Standard	Total Se 20 µg/mL	30 mL	H_2O/tr. HNO_3	SPEC-DUAL-SE
Dual Chromium (+3, +6) Speciation Standard	Total Cr 20 µg/mL	30 mL	H_2O	SPEC-DUAL-CR

Unique Features of Dual Speciation Standards:

- Standards are each at a total of 20 µg/mL and are optimized to work well for both ICP and ICP-MS (with a one-step dilution)
- Percentages of the species are determined by LC-ICP-MS and reported on our Certificate of Analysis
- An LC Chromatogram is featured on our Certificate of Analysis
- Trace impurities in the final solution are analyzed by ICP-MS and reported on the Certificate of Analysis

Example LC-ICP-MS Certificate

SPEXertificate®

Certificate of Reference Material

Catalog Number: SPEC-DUAL-AS **Lot No.** Sample

Description: 20 µg/mL Dual Inorganic Arsenic (III, V) Speciation Standard

Matrix: H_2O/Tr. HCl

This certified reference material, CRM, is intended primarily for use as a quality control standard for inorganic spectroscopic instrumentation such as LC-ICP-MS. It can be employed in validating analytical methods for the determination of relevant species.

Certified Value [As (total)]: 20.0 ± 0.4 µg/mL

Certified Value is Traceable to: 3103a*

* - Indicates NIST SRM t - Indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Arsenic (III) oxide (As203, Lot# 08831RAS) and Arsenic (V) oxide (As205, Lot# 1011D). The certified value for overall Arsenic is obtained by ICP measurement and calculation method. The percentage of As (III) and As (V) in this speciation standard is obtained by LC-ICP-MS.
Refer to side 2 for details of measurement uncertainties.

Uncertified Properties: Density: 0.998 g/mL @ 20°C

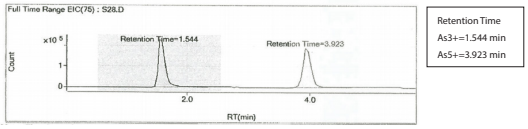
Instrumental Analysis by ICP Spectrometer [As (total)]: 20.0 ± 0.4 µg/mL

Calculated Result [As (total)]: 20.0 ± 0.4 µg/mL

Calculation Method:
This value was derived from dilution calculations of gravimetric analysis result of Arsenic concentrates. The concentrates were analyzed by both ICP measurement and wet assay traceable to NIST SRM3103a.

Instrumental Analysis by LC-ICP-MS Spectrometer **[As3+]:** 49.9% ± 5%
[As5+]: 50.1% ± 5%

Chromatogram



***Note:** The above chromatograph was obtained by analyzing a diluted standard at a concentration of 25µg/L of each species. An injection volume of 25µL was used. The final result of each species was determined against a calibration curve of each individual species using peak area.*

CAN'T FIND THE STANDARDS YOU ARE LOOKING FOR?

SPEX CertiPrep can make custom standards to meet your exact needs. Call your local sales representative for more information.

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