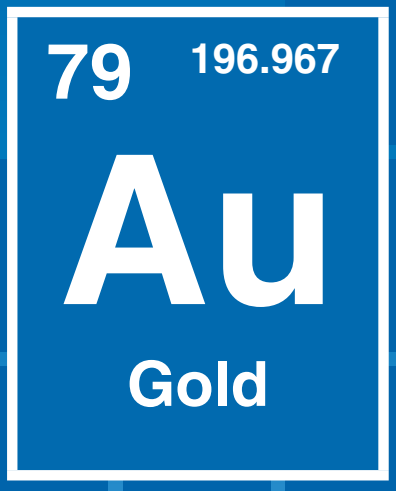
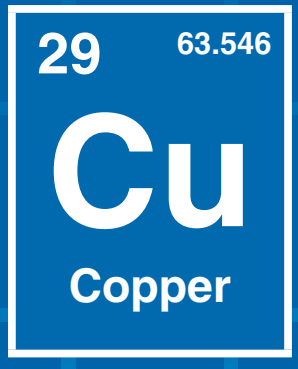
Inorganic Standards





AccuStandard®

Custom Formulations

Custom standards are made with the same attention to detail and high quality materials as the standards found in this catalog. The same manufacturing process is followed and custom standards are traceable to NIST SRMs wherever possible. You can be confident that you are not sacrificing quality when ordering a custom standard produced under the guidelines of our ISO 17034 accredited quality system.

- Fast turnaround time
- Order exactly what you need
- 18 month shelf life on most products
- Packaging options and bulk discounts available
- Committed technical support to answer your questions
- Verified by ICP, ICP-MS, or IC
- Traceable to NIST SRMs wherever possible

Custom formulations may be requested by contacting Inorganic Technical Service at inotech@accustandard.com or by visiting our website https://www.accustandard.com/custom-quote-request

Quality

At AccuStandard we strive to meet or exceed our customer's expectations from the initial contact with our Customer Service Department to the end use of our products.

AccuStandard is accredited to ISO 17034:2016, ISO/IEC 17025:2017, and certified to ISO 9001:2015. Management and employees take pride in our Quality System and fully support the implementation, monitoring and continuous improvement of our processes.

■ ICP ■ ICP-MS ■ Ion Chromatography

ISO 17034 • 17025 • 9001

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Certificate of Analysis

Single Element ICP

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AccuStandard®

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Catalog No: ICP-15N-10X-1
Description: Copper ICP Standard
Element: Copper (Cu)
SRM: 3114
Lot: 222015122
Matrix: 2% Nitric acid
Hazards: *Refer to SDS for complete safety information*

Signal Word: Danger

Date Certified: Jan 31, 2022
Expiration: Jan 31, 2027
Density: 1.027 g/mL
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB AR-1463

Certified Concentration: 10000 µg/mL

Trace Elements in µg/mL

Ag	N/A	Ce	nd<0.2	Gd	nd<0.02	Lu	nd<0.02	Pb	N/A	Sc	nd<0.02	Ti	nd<0.02
Al	nd<0.02	Co	nd<0.02	Ge	N/A	Mg	nd<0.02	Pd	nd<0.2	Se	nd<0.2	Tl	nd<0.2
As	nd<0.2	Cr	nd<0.02	Hf	nd<0.02	Mn	nd<0.02	Pr	nd<0.2	Si	N/A	Tm	nd<0.02
Au	nd<0.02	Cs	N/A	Hg	N/A	Mo	nd<0.02	Pt	nd<0.2	Sm	nd<0.2	U	nd<0.2
B	nd<0.2	Cu	*	Ho	nd<0.02	Na	0.06	Rb	N/A	Sn	nd<0.02	V	nd<0.02
Ba	nd<0.02	Dy	nd<0.02	In	nd<0.2	Nb	nd<0.2	Re	nd<0.2	Sr	nd<0.02	W	nd<0.2
Be	nd<0.02	Er	nd<0.02	Ir	nd<0.2	Nd	nd<0.02	Rh	nd<0.2	Ta	nd<0.2	Y	nd<0.02
Bi	N/A	Eu	nd<0.02	K	nd<0.2	Ni	nd<0.02	Ru	nd<0.02	Tb	nd<0.02	Yb	nd<0.02
Ca	0.04	Fe	nd<0.02	La	nd<0.02	Os	N/A	S	N/A	Te	N/A	Zn	N/A
Cd	nd<0.02	Ga	nd<0.02	Li	nd<0.02	P	N/A	Sb	nd<0.2	Th	nd<0.02	Zr	nd<0.02

This Certified Reference Material was verified in accordance with ISO/IEC 17025
This solution was assayed titrimetrically, using EDTA which was standardized against NIST SRM #915a (calcium carbonate).
A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.
The gravimetric uncertainty for this product is ±0.24%. The CRM uncertainty is ±2.4%.
In order to verify the concentration(s), the final solution was checked by plasma emission spectroscopy (ICP) against material traceable to the above listed NIST SRM(s).
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as high purity acids and ASTM Type I 18 megohm deionized water.
All trace level elemental impurities were determined via plasma emission spectroscopy on the concentrate.
All weights are traceable through NIST, Test No. 684/289871-17
All glassware used in preparation is Class A.
All bottles are acid leached and triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware. Keep bottle tightly capped.

Certified By: Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev 7/20

Most Single element standards have a minumum 3 Year expiration period

Directly traceable to NIST SRMs - where available

Density included for conversion to weight/weight applications

GHS safety information

Impurity Scan for 68 elements in final solution

Concentration verified by two independent methods for added assurance

Uncertainty reported for statistical confidence

Highest purity starting materials & matrices used

QC management approval

ICP
Single Element

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis
- Packaged in specially prepared acid leached bottles

3 year minimum shelf life on Single Element ICP standards

Element Starting Material	Matrix	1,000 µg/mL Cat. No.	 Unit	10,000 µg/mL Cat. No.	 Unit
Aluminum (Al) $Al(NO_3)_3 \bullet 9H_2O$	2-5% Nitric acid	---	---	ICP-01N-10X-0.5	50 mL
		ICP-01N-1	100 mL	ICP-01N-10X-1	100 mL
		ICP-01N-5	500 mL	ICP-01N-10X-5	500 mL
Antimony (Sb) Sb	2-5% Nitric acid tr. Tartaric acid	---	---	ICP-02N-10X-0.5	50 mL
		ICP-02N-1	100 mL	ICP-02N-10X-1	100 mL
		ICP-02N-5	500 mL	ICP-02N-10X-5	500 mL
Arsenic (As) As	2-5% Nitric acid	---	---	ICP-03N-10X-0.5	50 mL
		ICP-03N-1	100 mL	ICP-03N-10X-1	100 mL
		ICP-03N-5	500 mL	ICP-03N-10X-5	500 mL
Barium (Ba) $Ba(NO_3)_2$	2-5% Nitric acid	---	---	ICP-04N-10X-0.5	500 mL
		ICP-04N-1	100 mL	ICP-04N-10X-1	100 mL
		ICP-04N-5	500 mL	ICP-04N-10X-5	500 mL
Beryllium (Be) $BeO(C_2H_3O_2)_6$	2-5% Nitric acid	---	---	ICP-05N-10X-0.5	50 mL
		ICP-05N-1	100 mL	ICP-05N-10X-1	100 mL
		ICP-05N-5	500 mL	contact technical service	500 mL
Bismuth (Bi) Bi	2-10% Nitric acid	---	---	ICP-06N-10X-0.5	50 mL
		ICP-06N-1	100 mL	ICP-06N-10X-1	100 mL
		ICP-06N-5	500 mL	ICP-06N-10X-5	500 mL
Boron (B) H_3BO_3	Water tr. NH_4OH	---	---	ICP-07W-10X-0.5	50 mL
		ICP-07W-1	100 mL	ICP-07W-10X-1	100 mL
		ICP-07W-5	500 mL	ICP-07W-10X-5	500 mL
Cadmium (Cd) Cd	2-5% Nitric acid	---	---	ICP-08N-10X-0.5	50 mL
		ICP-08N-1	100 mL	ICP-08N-10X-1	100 mL
		ICP-08N-5	500 mL	ICP-08N-10X-5	500 mL
Calcium (Ca) $CaCO_3$	2-5% Nitric acid	---	---	ICP-09N-10X-0.5	50 mL
		ICP-09N-1	100 mL	ICP-09N-10X-1	100 mL
		ICP-09N-5	500 mL	ICP-09N-10X-5	500 mL
Cerium (Ce) $Ce(NO_3)_3$	2-5% Nitric acid	---	---	ICP-11N-10X-0.5	50 mL
		ICP-11N-1	100 mL	ICP-11N-10X-1	100 mL
		ICP-11N-5	500 mL	ICP-11N-10X-5	500 mL
Cesium (Cs) $CsNO_3$	2-5% Nitric acid	---	---	ICP-12N-10X-0.5	50 mL
		ICP-12N-1	100 mL	ICP-12N-10X-1	100 mL
		ICP-12N-5	500 mL	ICP-12N-10X-5	500 mL
Chromium (Cr) $Cr(NO_3)3 \bullet 9H_2O$	2-5% Nitric acid	---	---	ICP-13N-R-10X-0.5	50 mL
		ICP-13N-R-1	100 mL	ICP-13N-R-10X-1	100 mL
		ICP-13N-R-5	500 mL	ICP-13N-R-10X-5	500 mL
Cobalt (Co) Co	2-5% Nitric acid	---	---	ICP-14N-10X-0.5	50 mL
		ICP-14N-1	100 mL	ICP-14N-10X-1	100 mL
		ICP-14N-5	500 mL	ICP-14N-10X-5	500 mL
Copper (Cu) Cu	2-5% Nitric acid	---	---	ICP-15N-10X-0.5	50 mL
		ICP-15N-1	100 mL	ICP-15N-10X-1	100 mL
		ICP-15N-5	500 mL	ICP-15N-10X-5	500 mL
Dysprosium (Dy) Dy_2O_3	2-5% Nitric acid	---	---	ICP-16N-10X-0.5	50 mL
		ICP-16N-1	100 mL	ICP-16N-10X-1	100 mL
		ICP-16N-5	500 mL	ICP-16N-10X-5	500 mL
Erbium (Er) Er_2O_3	2-5% Nitric acid	---	---	ICP-17N-10X-0.5	50 mL
		ICP-17N-1	100 mL	ICP-17N-10X-1	100 mL
		ICP-17N-5	500 mL	ICP-17N-10X-5	500 mL
Europium (Eu) Eu_2O_3	2-5% Nitric acid	---	---	ICP-18N-10X-0.5	50 mL
		ICP-18N-1	100 mL	ICP-18N-10X-1	100 mL
		ICP-18N-5	500 mL	contact technical service	500 mL

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Element Starting Material	Matrix	1,000 µg/mL Cat. No.	 Unit	10,000 µg/mL Cat. No.	 Unit
Gadolinium (Gd) Gd_2O_3	2-5% Nitric acid	---	---	ICP-19N-10X-0.5	50 mL
		ICP-19N-1	100 mL	ICP-19N-10X-1	100 mL
		ICP-19N-5	500 mL	ICP-19N-10X-5	500 mL
Gallium (Ga) Ga	2-5% Nitric acid	---	---	ICP-20N-10X-0.5	50 mL
		ICP-20N-1	100 mL	ICP-20N-10X-1	100 mL
		ICP-20N-5	500 mL	ICP-20N-10X-5	500 mL
Germanium (Ge) $(NH_4)_2GeF_6$	Water tr. HF	---	---	ICP-21W-10X-0.5	50 mL
		ICP-21W-1	100 mL	ICP-21W-10X-1	100 mL
		ICP-21W-5	500 mL	ICP-21W-10X-5	500 mL
Gold (Au) Au	10% HCl	---	---	contact technical service	50 mL
		ICP-22H-1	100 mL	contact technical service	100 mL
		ICP-22H-5	500 mL	contact technical service	500 mL
Hafnium (Hf) HfO_2	2-5% Nitric acid tr. HF	---	---	ICP-23N-10X-0.5	50 mL
		ICP-23N-1	100 mL	ICP-23N-10X-1	100 mL
		ICP-23N-5	500 mL	----------	--
Holmium (Ho) Ho_2O_3	2-5% Nitric acid	---	---	ICP-24N-10X-0.5	50 mL
		ICP-24N-1	100 mL	ICP-24N-10X-1	100 mL
		ICP-24N-5	500 mL	ICP-24N-10X-5	500 mL
Indium (In) In	2-5% Nitric acid	---	---	ICP-25N-10X-0.5	50 mL
		ICP-25N-1	100 mL	ICP-25N-10X-1	100 mL
		ICP-25N-5	500 mL	ICP-25N-10X-5	500 mL
Iridium (Ir) $IrCl_3 \cdot 3H_20$	10% HCl	---	---	contact technical service	50 mL
		ICP-26H-1	100 mL	contact technical service	100 mL
		ICP-26H-5	500 mL	contact technical service	500 mL
Iron (Fe) $Fe(NO_3)3{\cdot}9H_2O$	2-5% Nitric acid	---	---	ICP-27N-10X-0.5	50 mL
		ICP-27N-1	100 mL	ICP-27N-10X-1	100 mL
		ICP-27N-5	500 mL	ICP-27N-10X-5	500 mL
Lanthanum (La) La_2O_3	2-5% Nitric acid	---	---	ICP-28N-10X-0.5	50 mL
		ICP-28N-1	100 mL	ICP-28N-10X-1	100 mL
		ICP-28N-5	500 mL	ICP-28N-10X-5	500 mL
Lead (Pb) $Pb(NO_3)_2$	2-5% Nitric acid	---	---	ICP-29N-10X-0.5	50 mL
		ICP-29N-1	100 mL	ICP-29N-10X-1	100 mL
		ICP-29N-5	500 mL	ICP-29N-10X-5	500 mL
Lithium (Li) Li_2CO_3	2-5% Nitric acid	---	---	ICP-30N-10X-0.5	50 mL
		ICP-30N-1	100 mL	ICP-30N-10X-1	100 mL
		ICP-30N-5	500 mL	ICP-30N-10X-5	500 mL
Lutetium (Lu) Lu_2O_3	2-5% Nitric acid	---	---	ICP-31N-10X-0.5	50 mL
		ICP-31N-1	100 mL	ICP-31N-10X-1	100 mL
		ICP-31N-5	500 mL	contact technical service	500 mL
Magnesium (Mg) $Mg(NO_3)_2 \cdot 6H_2O$	2-5% Nitric acid	---	---	ICP-32N-10X-0.5	50 mL
		ICP-32N-1	100 mL	ICP-32N-10X-1	100 mL
		ICP-32N-5	500 mL	ICP-32N-10X-5	500 mL
Manganese (Mn) $Mn(C_2H_3O_2)_2$	2-5% Nitric acid	---	---	ICP-33N-10X-0.5	50 mL
		ICP-33N-1	100 mL	ICP-33N-10X-1	100 mL
		ICP-33N-5	500 mL	ICP-33N-10X-5	500 mL
Mercury (Hg) Hg	10% Nitric acid	---	---	ICP-34N-10X-0.5	50 mL
		ICP-34N-1	100 mL	ICP-34N-10X-1	100 mL
		ICP-34N-5	500 mL	ICP-34N-10X-5	500 mL
Molybdenum (Mo) $(NH_4)_2MoO_4$	Water tr. NH_4OH	---	---	ICP-35W-10X-0.5	50 mL
		ICP-35W-1	100 mL	ICP-35W-10X-1	100 mL
		ICP-35W-5	500 mL	ICP-35W-10X-5	500 mL
Neodymium (Nd) Nd_2O_3	2-5% Nitric acid	---	---	ICP-36N-10X-0.5	50 mL
		ICP-36N-1	100 mL	ICP-36N-10X-1	100 mL
		ICP-36N-5	500 mL	ICP-36N-10X-5	500 mL
Nickel (Ni) Ni	2-5% Nitric acid	---	---	ICP-37N-10X-0.5	50 mL
		ICP-37N-1	100 mL	ICP-37N-10X-1	100 mL
		ICP-37N-5	500 mL	ICP-37N-10X-5	500 mL
Niobium (Nb) Nb_2O_5	Water tr. HF	---	---	ICP-38W-10X-0.5	50 mL
		ICP-38W-1	100 mL	ICP-38W-10X-1	100 mL
		ICP-38W-5	500 mL	contact technical service	500 mL

Element Starting Material	Matrix	1,000 µg/mL Cat. No.	 Unit	10,000 µg/mL Cat. No.	 Unit
Palladium (Pd) Pd	10% HCl	---	---	contact technical service	50 mL
		ICP-40H-1	100 mL	contact technical service	100 mL
		ICP-40H-5	500 mL	contact technical service	500 mL
Phosphorus (P) $NH_4H_2PO_4$	Water	---	---	ICP-41W-10X-0.5	50 mL
		ICP-41W-1	100 mL	ICP-41W-10X-1	100 mL
		ICP-41W-5	500 mL	ICP-41W-10X-5	500 mL
Platinum (Pt) Pt	10% HCl	---	---	contact technical service	50 mL
		ICP-42H-1	100 mL	contact technical service	100 mL
		ICP-42H-5	500 mL	contact technical service	500 mL
Potassium (K) KNO_3	2-5% Nitric acid	---	---	ICP-43N-10X-0.5	50 mL
		ICP-43N-1	100 mL	ICP-43N-10X-1	100 mL
		ICP-43N-5	500 mL	ICP-43N-10X-5	500 mL
Praseodymium (Pr) Pr_6O_{11}	2-5% Nitric acid	---	----	ICP-44N-10X-0.5	50 mL
		ICP-44N-1	100 mL	ICP-44N-10X-1	100 mL
		ICP-44N-5	500 mL	ICP-44N-10X-5	500 mL
Rhenium (Re) Re	Water tr. Nitric acid	---	---	ICP-45W-10X-0.5	50 mL
		ICP-45W-1	100 mL	ICP-45W-10X-1	100 mL
		ICP-45W-5	500 mL	ICP-45W-10X-5	500 mL
Rhodium (Rh) $RhCl_3 \bullet 3H_2O$	10% HCl	---	---	contact technical service	50 mL
		ICP-46H-1	100 mL	contact technical service	100 mL
		ICP-46H-5	500 mL	contact technical service	500 mL
Rubidium (Rb) $RbNO_3$	2-5% Nitric acid	---	---	ICP-47N-10X-0.5	50 mL
		ICP-47N-1	100 mL	ICP-47N-10X-1	100 mL
		ICP-47N-5	500 mL	ICP-47N-10X-5	500 mL
Ruthenium (Ru) $RuCl_3 \bullet 3H_2O$	10% HCl	---	----	contact technical service	50 mL
		ICP-48H-1	100 mL	contact technical service	100 mL
		ICP-48H-5	500 mL	contact technical service	500 mL
Samarium (Sm) Sm_2O_3	2-5% Nitric acid	---	---	ICP-49N-10X-0.5	50 mL
		ICP-49N-1	100 mL	ICP-49N-10X-1	100 mL
		ICP-49N-5	500 mL	ICP-49N-10X-5	500 mL
Scandium (Sc) Sc_2O_3	2-5% Nitric acid	---	---	ICP-50N-10X-0.5	50 mL
		ICP-50N-1	100 mL	ICP-50N-10X-1	100 mL
		ICP-50N-5	500 mL	ICP-50N-10X-5	500 mL
Selenium (Se) Se	2-5% Nitric acid	---	---	ICP-51N-10X-0.5	50 mL
		ICP-51N-1	100 mL	ICP-51N-10X-1	100 mL
		ICP-51N-5	500 mL	ICP-51N-10X-5	500 mL
Silicon (Si) $(NH_4)2SiF_6$	Water tr. HF	---	----	ICP-52W-10X-0.5	50 mL
		ICP-52W-1	100 mL	ICP-52W-10X-1	100 mL
		ICP-52W-5	500 mL	ICP-52W-10X-5	500 mL
Silver (Ag) $AgNO_3$	2-5% Nitric acid	---	---	ICP-53N-10X-0.5	50 mL
		ICP-53N-1	100 mL	ICP-53N-10X-1	100 mL
		ICP-53N-5	500 mL	ICP-53N-10X-5	500 mL
Sodium (Na) $NaNO_3$	2-5% Nitric acid	---	---	ICP-54N-10X-0.5	50 mL
		ICP-54N-1	100 mL	ICP-54N-10X-1	100 mL
		ICP-54N-5	500 mL	ICP-54N-10X-5	500 mL
Strontium (Sr) $Sr(NO_3)_2$	2-5% Nitric acid	---	---	ICP-55N-10X-0.5	50 mL
		ICP-55N-1	100 mL	ICP-55N-10X-1	100 mL
		ICP-55N-5	500 mL	ICP-55N-10X-5	500 mL
Sulfur (S) $(NH_4)_2SO_4$	Water	---	---	ICP-56W-10X-0.5	50 mL
		ICP-56W-1	100 mL	ICP-56W-10X-1	100 mL
		ICP-56W-5	500 mL	ICP-56W-10X-5	500 mL
Tantalum (Ta) Ta	Water, tr. to 5% HF	---	---	ICP-57W-10X-0.5	50 mL
		ICP-57W-1	100 mL	ICP-57W-10X-1	100 mL
		ICP-57W-5	500 mL	ICP-57W-10X-5	500 mL
Tellurium (Te) TeO_2	20%-40% HCl	---	---	ICP-58H-10X-0.5	50 mL
		ICP-58H-1	100 mL	ICP-58H-10X-1	100 mL
		ICP-58H-5	500 mL	ICP-58H-10X-5	500 mL

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Element Starting Material	Matrix	1,000 µg/mL Cat. No.	 Unit	10,000 µg/mL Cat. No.	 Unit
Terbium (Tb) Tb_4O_7	2-5% Nitric acid	---	---	ICP-59N-10X-0.5	50 mL
		ICP-59N-1	100 mL	ICP-59N-10X-1	100 mL
		ICP-59N-5	500 mL	contact technical service	500 mL
Thallium (Tl) $TlNO_3$	2-5% Nitric acid	---	---	ICP-60N-10X-0.5	50 mL
		ICP-60N-1	100 mL	ICP-60N-10X-1	100 mL
		ICP-60N-5	500 mL	ICP-60N-10X-5	500 mL
Thorium (Th) $Th(NO_3)4 \bullet 4H_2O$	2-5% Nitric acid	---	---	---	---
		ICP-61N-1	100 mL	---	---
		ICP-61N-5	500 mL	---	---
Thulium (Tm) Tm_2O_3	2-5% Nitric acid	---	---	ICP-62N-10X-0.5	50 mL
		ICP-62N-1	100 mL	ICP-62N-10X-1	100 mL
		ICP-62N-5	500 mL	contact technical service	500 mL
Tin (Sn) Sn	2-5% Nitric acid tr. HF	---	---	ICP-63N-10X-0.5	50 mL
		ICP-63N-1	100 mL	ICP-63N-10X-1	100 mL
		ICP-63N-5	500 mL	contact technical service	500 mL
Titanium (Ti) $(NH_4)_2TiF_6$	Water tr. HF	---	---	ICP-64W-10X-0.5	50 mL
		ICP-64W-1	100 mL	ICP-64W-10X-1	100 mL
		ICP-64W-5	500 mL	ICP-64W-10X-5	500 mL
Tungsten (W) $(NH_4)_2WO_4$	Water tr. NH_4OH	---	---	ICP-65W-10X-0.5	50 mL
		ICP-65W-1	100 mL	ICP-65W-10X-1	100 mL
		ICP-65W-5	500 mL	ICP-65W-10X-5	500 mL
Uranium (U) $UO_2(NO_3)2 \bullet 6H_2O$	2-5% Nitric acid	---	---	---	---
		ICP-66N-R-1	100 mL	---	---
		ICP-66N-R-5	500 mL	---	---
Vanadium (V) V_2O_5	2-5% Nitric acid	---	---	ICP-67N-10X-0.5	50 mL
		ICP-67N-1	100 mL	ICP-67N-10X-1	100 mL
		ICP-67N-5	500 mL	ICP-67N-10X-5	500 mL
Ytterbium (Yb) Yb_2O_3	2-5% Nitric acid	---	---	ICP-68N-10X-0.5	50 mL
		ICP-68N-1	100 mL	ICP-68N-10X-1	100 mL
		ICP-68N-5	500 mL	ICP-68N-10X-5	500 mL
Yttrium (Y) Y_2O_3	2-5% Nitric acid	---	---	ICP-69N-10X-0.5	50 mL
		ICP-69N-1	100 mL	ICP-69N-10X-1	100 mL
		ICP-69N-5	500 mL	ICP-69N-10X-5	500 mL
Zinc (Zn) Zn	2-5% Nitric acid	---	---	ICP-70N-10X-0.5	50 mL
		ICP-70N-1	100 mL	ICP-70N-10X-1	100 mL
		ICP-70N-5	500 mL	ICP-70N-10X-5	500 mL
Zirconium (Zr) $ZrO(NO_3)_2$	2-5% Nitric acid	---	---	ICP-71N-10X-0.5	50 mL
		ICP-71N-1	100 mL	ICP-71N-10X-1	100 mL
		ICP-71N-5	500 mL	contact technical service	500 mL

Custom Formulations

Meet your specific needs.

Request a custom formulation on our website or contact our Inorganic Technical Service Department email: inotech@accustandard.com

Matrix Blanks

Nitric Acid Blank

CLP-BLN-5 **500 mL**
CLP-BLN-L-VAP **1L (2 x 500 mL)**

5% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

CLP-BLH-5 **500 mL**
CLP-BLH-L-VAP **1L (2 x 500 mL)**

5% HCl in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

CLP-BLMA-5 **500 mL**
CLP-BLMA-L-VAP **1L (2 x 500 mL)**

5% HCl + 1% HNO_3 in 18 Megohm ASTM Type I deionized Water

Water Blank

CLP-BLW-5 **500 mL**
CLP-BLW-L-VAP **1L (2 x 500 mL)**

18 Megohm ASTM Type I deionized Water

ICP-MS
Single Element

ICP-MS Standards are formulated to meet the needs of this very special instrument. As matrix effect is of utmost concern, each standard is formulated in specially purified 18 megohm de-ionized water and ultra pure acids.

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis

3 year minimum shelf life on Single Element ICP-MS standards

Element Matrix	100 µg/mL Cat. No.	Unit	1,000 µg/mL Cat. No.	Unit	10,000 µg/mL Cat. No.	Unit
Aluminum (Al) 2-5% HNO_3	ICP-MS-01N-0.01X-1	100 mL	ICP-MS-01N-0.1X-1	100 mL	ICP-MS-01N-1	100 mL
Antimony (Sb) 2-5% HNO_3 tr. Tartaric acid	ICP-MS-02N-0.01X-1	100 mL	ICP-MS-02N-0.1X-1	100 mL	ICP-MS-02N-1	100 mL
Arsenic (As) 2-5% HNO_3	ICP-MS-03N-0.01X-1	100 mL	ICP-MS-03N-0.1X-1	100 mL	ICP-MS-03N-1	100 mL
Barium (Ba) 2-5% HNO_3	ICP-MS-04N-0.01X-1	100 mL	ICP-MS-04N-0.1X-1	100 mL	ICP-MS-04N-1	100 mL
Beryllium (Be) 2-5% HNO_3	ICP-MS-05N-0.01X-1	100 mL	ICP-MS-05N-0.1X-1	100 mL	ICP-MS-05N-1	100 mL
Bismuth (Bi) 2-10% HNO_3	ICP-MS-06N-0.01X-1	100 mL	ICP-MS-06N-0.1X-1	100 mL	ICP-MS-06N-1	100 mL
Boron (B) Water tr. NH_4OH	ICP-MS-07W-0.01X-1	100 mL	ICP-MS-07W-0.1X-1	100 mL	ICP-MS-07W-1	100 mL
Cadmium (Cd) 2-5% HNO_3	ICP-MS-08N-0.01X-1	100 mL	ICP-MS-08N-0.1X-1	100 mL	ICP-MS-08N-1	100 mL
Calcium (Ca) 2-5% HNO_3	ICP-MS-09N-0.01X-1	100 mL	ICP-MS-09N-0.1X-1	100 mL	ICP-MS-09N-1	100 mL
Cerium (Ce) 2-5% HNO_3	ICP-MS-11N-0.01X-1	100 mL	ICP-MS-11N-0.1X-1	100 mL	ICP-MS-11N-1	100 mL
Cesium (Cs) 2-5% HNO_3	ICP-MS-12N-0.01X-1	100 mL	ICP-MS-12N-0.1X-1	100 mL	ICP-MS-12N-1	100 mL
Chromium (Cr) 2-5% HNO_3	ICP-MS-13N-R-0.01X-1	100 mL	ICP-MS-13N-R-0.1X-1	100 mL	ICP-MS-13N-R-1	100 mL
Cobalt (Co) 2-5% HNO_3	ICP-MS-14N-0.01X-1	100 mL	ICP-MS-14N-0.1X-1	100 mL	ICP-MS-14N-1	100 mL
Copper (Cu) 2-5% HNO_3	ICP-MS-15N-0.01X-1	100 mL	ICP-MS-15N-0.1X-1	100 mL	ICP-MS-15N-1	100 mL
Dysprosium (Dy) 2-5% HNO_3	ICP-MS-16N-0.01X-1	100 mL	ICP-MS-16N-0.1X-1	100 mL	ICP-MS-16N-1	100 mL
Erbium (Er) 2-5% HNO_3	ICP-MS-17N-0.01X-1	100 mL	ICP-MS-17N-0.1X-1	100 mL	ICP-MS-17N-1	100 mL
Europium (Eu) 2-5% HNO_3	ICP-MS-18N-0.01X-1	100 mL	ICP-MS-18N-0.1X-1	100 mL	ICP-MS-18N-1	100 mL
Gadolinium (Gd) 2-5% HNO_3	ICP-MS-19N-0.01X-1	100 mL	ICP-MS-19N-0.1X-1	100 mL	ICP-MS-19N-1	100 mL
Gallium (Ga) 2-5% HNO_3	ICP-MS-20N-0.01X-1	100 mL	ICP-MS-20N-0.1X-1	100 mL	ICP-MS-20N-1	100 mL
Germanium (Ge) Water tr. HF	ICP-MS-21W-0.01X-1	100 mL	ICP-MS-21W-0.1X-1	100 mL	ICP-MS-21W-1	100 mL
Gold (Au) 10% HCl	ICP-MS-22H-0.01X-1	100 mL	ICP-MS-22H-0.1X-1	100 mL	contact technical service	
Hafnium (Hf) 2-5% HNO_3 tr. HF	ICP-MS-23N-0.01X-1	100 mL	ICP-MS-23N-0.1X-1	100 mL	ICP-MS-23N-1	100 mL

Single Element ICP-MS continued on next page

ICP-MS
Single Element

Element Matrix	100 µg/mL Cat. No.	 Unit	1,000 µg/mL Cat. No.	 Unit	10,000 µg/mL Cat. No.	 Unit
Holmium (Ho) 2-5% HNO_3	ICP-MS-24N-0.01X-1	100 mL	ICP-MS-24N-0.1X-1	100 mL	ICP-MS-24N-1	100 mL
Indium (In) 2-5% HNO_3	ICP-MS-25N-0.01X-1	100 mL	ICP-MS-25N-0.1X-1	100 mL	ICP-MS-25N-1	100 mL
Iridium (Ir) 10% HCl	ICP-MS-26H-0.01X-1	100 mL	ICP-MS-26H-0.1X-1	100 mL	contact technical service	
Iron (Fe) 2-5% HNO_3	ICP-MS-27N-0.01X-1	100 mL	ICP-MS-27N-0.1X-1	100 mL	ICP-MS-27N-1	100 mL
Lanthanum (La) 2-5% HNO_3	ICP-MS-28N-0.01X-1	100 mL	ICP-MS-28N-0.1X-1	100 mL	ICP-MS-28N-1	100 mL
Lead (Pb) 2-5% HNO_3	ICP-MS-29N-0.01X-1	100 mL	ICP-MS-29N-0.1X-1	100 mL	ICP-MS-29N-1	100 mL
Lithium (Li) 2-5% HNO_3	ICP-MS-30N-0.01X-1	100 mL	ICP-MS-30N-0.1X-1	100 mL	ICP-MS-30N-1	100 mL
Lutetium (Lu) 2-5% HNO_3	ICP-MS-31N-0.01X-1	100 mL	ICP-MS-31N-0.1X-1	100 mL	ICP-MS-31N-1	100 mL
Magnesium (Mg) 2-5% HNO_3	ICP-MS-32N-0.01X-1	100 mL	ICP-MS-32N-0.1X-1	100 mL	ICP-MS-32N-1	100 mL
Manganese (Mn) 2-5% HNO_3	ICP-MS-33N-0.01X-1	100 mL	ICP-MS-33N-0.1X-1	100 mL	ICP-MS-33N-1	100 mL
Mercury (Hg) 5-10% HNO_3	ICP-MS-34N-0.01X-1	100 mL	ICP-MS-34N-0.1X-1	100 mL	ICP-MS-34N-1	100 mL
Molybdenum (Mo) Water tr. NH_4OH	ICP-MS-35W-0.01X-1	100 mL	ICP-MS-35W-0.1X-1	100 mL	ICP-MS-35W-1	100 mL
Neodymium (Nd) 2-5% HNO_3	ICP-MS-36N-0.01X-1	100 mL	ICP-MS-36N-0.1X-1	100 mL	ICP-MS-36N-1	100 mL
Nickel (Ni) 2-5% HNO_3	ICP-MS-37N-0.01X-1	100 mL	ICP-MS-37N-0.1X-1	100 mL	ICP-MS-37N-1	100 mL
Niobium (Nb) Water tr. HF	ICP-MS-38W-0.01X-1	100 mL	ICP-MS-38W-0.1X-1	100 mL	ICP-MS-38W-1	100 mL
Palladium (Pd) 10% HCl	ICP-MS-40H-0.01X-1	100 mL	ICP-MS-40H-0.1X-1	100 mL	contact technical service	
Phosphorus (P) Water	ICP-MS-41W-0.01X-1	100 mL	ICP-MS-41W-0.1X-1	100 mL	ICP-MS-41W-1	100 mL
Platinum (Pt) 10% HCl	ICP-MS-42H-0.01X-1	100 mL	ICP-MS-42H-0.1X-1	100 mL	contact technical service	
Potassium (K) 2-5% HNO_3	ICP-MS-43N-0.01X-1	100 mL	ICP-MS-43N-0.1X-1	100 mL	ICP-MS-43N-1	100 mL
Praseodymium (Pr) 2-5% HNO_3	ICP-MS-44N-0.01X-1	100 mL	ICP-MS-44N-0.1X-1	100 mL	ICP-MS-44N-1	100 mL
Rhenium (Re) Water tr. HNO_3	ICP-MS-45W-0.01X-1	100 mL	ICP-MS-45W-0.1X-1	100 mL	ICP-MS-45W-1	100 mL
Rhodium (Rh) 10% HCl	ICP-MS-46H-0.01X-1	100 mL	ICP-MS-46H-0.1X-1	100 mL	contact technical service	
Rubidium (Rb) 2-5% HNO_3	ICP-MS-47N-0.01X-1	100 mL	ICP-MS-47N-0.1X-1	100 mL	ICP-MS-47N-1	100 mL
Ruthenium (Ru) 10% HCl	ICP-MS-48H-0.01X-1	100 mL	ICP-MS-48H-0.1X-1	100 mL	contact technical service	
Samarium (Sm) 2-5% HNO_3	ICP-MS-49N-0.01X-1	100 mL	ICP-MS-49N-0.1X-1	100 mL	ICP-MS-49N-1	100 mL
Scandium (Sc) 2-5% HNO_3	ICP-MS-50N-0.01X-1	100 mL	ICP-MS-50N-0.1X-1	100 mL	ICP-MS-50N-1	100 mL

ICP-MS
Single Element and Matrix Blanks

Element Matrix	100 µg/mL Cat. No.	 Unit	1,000 µg/mL Cat. No.	 Unit	10,000 µg/mL Cat. No.	 Unit
Selenium (Se) 2-5% HNO_3	ICP-MS-51N-0.01X-1	100 mL	ICP-MS-51N-0.1X-1	100 mL	ICP-MS-51N-1	100 mL
Silicon (Si) H_2O tr. HF	ICP-MS-52W-0.01X-1	100 mL	ICP-MS-52W-0.1X-1	100 mL	ICP-MS-52W-1	100 mL
Silver (Ag) 2-5% HNO_3	ICP-MS-53N-0.01X-1	100 mL	ICP-MS-53N-0.1X-1	100 mL	ICP-MS-53N-1	100 mL
Sodium (Na) 2-5% HNO_3	ICP-MS-54N-0.01X-1	100 mL	ICP-MS-54N-0.1X-1	100 mL	ICP-MS-54N-1	100 mL
Strontium (Sr) 2-5% HNO_3	ICP-MS-55N-0.01X-1	100 mL	ICP-MS-55N-0.1X-1	100 mL	ICP-MS-55N-1	100 mL
Sulfur (S) Water	ICP-MS-56W-0.01X-1	100 mL	ICP-MS-56W-0.1X-1	100 mL	ICP-MS-56W-1	100 mL
Tantalum (Ta) Water, tr. to 5% HF	ICP-MS-57W-0.01X-1	100 mL	ICP-MS-57W-0.1X-1	100 mL	ICP-MS-57W-1	100 mL
Tellurium (Te) 10% HCl (min.)	ICP-MS-58H-0.01X-1	100 mL	ICP-MS-58H-0.1X-1	100 mL	ICP-MS-58H-1	100 mL
Terbium (Tb) 2-5% HNO_3	ICP-MS-59N-0.01X-1	100 mL	ICP-MS-59N-0.1X-1	100 mL	ICP-MS-59N-1	100 mL
Thallium (Tl) 2-5% HNO_3	ICP-MS-60N-0.01X-1	100 mL	ICP-MS-60N-0.1X-1	100 mL	ICP-MS-60N-1	100 mL
Thorium (Th) 2-5% HNO_3	ICP-MS-61N-0.01X-1	100 mL	ICP-MS-61N-0.1X-1	100 mL	----------	----
Thulium (Tm) 2-5% HNO_3	ICP-MS-62N-0.01X-1	100 mL	ICP-MS-62N-0.1X-1	100 mL	ICP-MS-62N-1	100 mL
Tin (Sn) 2-5% HNO_3 tr. HF	ICP-MS-63N-0.01X-1	100 mL	ICP-MS-63N-0.1X-1	100 mL	ICP-MS-63N-1	100 mL
Titanium (Ti) Water tr. HF	ICP-MS-64W-0.01X-1	100 mL	ICP-MS-64W-0.1X-1	100 mL	ICP-MS-64W-1	100 mL
Tungsten (W) Water tr. NH_4OH	ICP-MS-65W-0.01X-1	100 mL	ICP-MS-65W-0.1X-1	100 mL	ICP-MS-65W-1	100 mL
Uranium (U) 2-5% HNO_3	ICP-MS-66N-0.01X-1	100 mL	ICP-MS-66N-R-0.1X-1	100 mL	----------	----
Vanadium (V) 2-5% HNO_3	ICP-MS-67N-0.01X-1	100 mL	ICP-MS-67N-0.1X-1	100 mL	ICP-MS-67N-1	100 mL
Ytterbium (Yb) 2-5% HNO_3	ICP-MS-68N-0.01X-1	100 mL	ICP-MS-68N-0.1X-1	100 mL	ICP-MS-68N-1	100 mL
Yttrium (Y) 2-5% HNO_3	ICP-MS-69N-0.01X-1	100 mL	ICP-MS-69N-0.1X-1	100 mL	ICP-MS-69N-1	100 mL
Zinc (Zn) 2-5% HNO_3	ICP-MS-70N-0.01X-1	100 mL	ICP-MS-70N-0.1X-1	100 mL	ICP-MS-70N-1	100 mL
Zirconium (Zr) 2-5% HNO_3	ICP-MS-71N-0.01X-1	100 mL	ICP-MS-71N-0.1X-1	100 mL	ICP-MS-71N-1	100 mL

Matrix Blanks

Nitric Acid Blank

ICP-MS-BLN-1	100 mL
ICP-MS-BLN-5	500 mL

5% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

ICP-MS-BLH-1	100 mL
ICP-MS-BLH-5	500 mL

5% HCl in 18 Megohm ASTM Type I deionized Water

Water Blank

ICP-MS-BLW-1	100 mL
ICP-MS-BLW-5	500 mL

18 Megohm ASTM Type I deionized Water

Blanks are prepared from the same water source and acids as your standards and therefore provide a consistent matrix. They are excellent as a blank, preparing a standard curve, or as a diluent for standards and samples.

AA
Single Element, Matrix Modifiers and Blanks

Each standard is prepared from high purity starting materials, 18 megohm de-ionized water and high purity acids. Every standard is instrumentally assayed to verify concentration of specified element.

- Traceable to NIST Reference Materials
- Certificate of Analysis included
- 18 megohm de-ionized Water
- 36 Month Shelf Life

3 year minimum shelf life on Single Element AA standards

Single Element AA

Element Matrix	1,000 µg/mL Cat. No.	 Unit	Element Matrix	1,000 µg/mL Cat. No.	 Unit
Aluminum (Al)	AA01N-1	100 mL	**Molybdenum (Mo)**	AA35W-1	100 mL
2-5% Nitric acid	AA01N-5	500 mL	Water tr. NH_4OH	AA35W-5	500 mL
Antimony (Sb)	AA02N-1	100 mL	**Nickel (Ni)**	AA37N-1	100 mL
2-5% HNO_3 tr.Tartaric acid	AA02N-5	500 mL	2-5% Nitric acid	AA37N-5	500 mL
Arsenic (As)	AA03N-1	100 mL	**Phosphorus (P)**	AA41W-1	100 mL
2-5% Nitric acid	AA03N-5	500 mL	Water	AA41W-5	500 mL
Barium (Ba)	AA04N-1	100 mL	**Potassium (K)**	AA43N-1	100 mL
2-5% Nitric acid	AA04N-5	500 mL	2-5% Nitric acid	AA43N-5	500 mL
Boron (B)	AA07W-1	100 mL	**Selenium (Se)**	AA51N-1	100 mL
Water tr. NH_4OH	AA07W-5	500 mL	2-5% Nitric acid	AA51N-5	500 mL
Cadmium (Cd)	AA08N-1	100 mL	**Silicon (Si)**	AA52W-1	100 mL
2-5% Nitric acid	AA08N-5	500 mL	Water tr. HF	AA52W-5	500 mL
Calcium (Ca)	AA09N-1	100 mL	**Silver (Ag)**	AA53N-1	100 mL
2-5% Nitric acid	AA09N-5	500 mL	2-5% Nitric acid	AA53N-5	500 mL
Chromium (Cr)	AA13N-1	100 mL	**Sodium (Na)**	AA54N-1	100 mL
2-5% Nitric acid	AA13N-5	500 mL	2-5% Nitric acid	AA54N-5	500 mL
Cobalt (Co)	AA14N-1	100 mL	**Strontium (Sr)**	AA55N-1	100 mL
2-5% Nitric acid	AA14N-5	500 mL	2-5% Nitric acid	AA55N-5	500 mL
Copper (Cu)	AA15N-1	100 mL	**Sulfur (S)**	AA56W-1	100 mL
2-5% Nitric acid	AA15N-5	500 mL	Water	AA56W-5	500 mL
Iron (Fe)	AA27N-1	100 mL	**Thallium (Tl)**	AA60N-1	100 mL
2-5% Nitric acid	AA27N-5	500 mL	2-5% Nitric acid	AA60N-5	500 mL
Lead (Pb)	AA29N-1	100 mL	**Tin (Sn)**	AA63N-1	100 mL
2-5% Nitric acid	AA29N-5	500 mL	2-5% Nitric acid tr. HF	AA63N-5	500 mL
Lithium (Li)	AA30N-1	100 mL	**Titanium (Ti)**	AA64W-1	100 mL
2-5% Nitric acid	AA30N-5	500 mL	Water tr. HF	AA64W-5	500 mL
Magnesium (Mg)	AA32N-1	100 mL	**Vanadium (V)**	AA67N-1	100 mL
2-5% Nitric acid	AA32N-5	500 mL	5-10% Nitric acid	AA67N-5	500 mL
Manganese (Mn)	AA33N-1	100 mL	**Yttrium (Y)**	AA69N-1	100 mL
2-5% Nitric acid	AA33N-5	500 mL	2-5% Nitric acid	AA69N-5	500 mL
Mercury (Hg)	AA34N-R1-1	100 mL	**Zinc (Zn)**	AA70N-1	100 mL
2-5% Nitric acid	AA34N-R1-5	500 mL	2-5% Nitric acid	AA70N-5	500 mL

Matrix Modifier Solutions for Graphite Furnace AA

These Matrix Modifiers enhance sensitivity and suppress background interferences observed in trace metal analysis.

Modifier Description	Modifier Source	Cat. No.	Unit
Ammonium dihydrogen phosphate	$NH_4H_2PO_4$	MOD-02-0.5	50 mL
40% in Water		MOD-02-1	100 mL
Ammonium nitrate	NH_4NO_3	MOD-03-0.5	50 mL
5% in Water		MOD-03-1	100 mL
Magnesium nitrate	$Mg(NO_3)_2$	MOD-07-0.5	50 mL
2% Magnesium in 5% HNO_3		MOD-07-1	100 mL
Nickel nitrate	$Ni(NO_3)_2$	MOD-08-0.5	50 mL
5% Nickel in 5% HNO_3		MOD-08-1	100 mL
Palladium nitrate	$Pd(NO_3)_2$	MOD-09A-0.5	50 mL
0.2% Palladium in 5% HNO_3		MOD-09A-1	100 mL

Contact our Inorganic Technical Service Department if you require a different matrix modifier

Matrix Blanks

Nitric Acid Blank

CLP-BLN-5 500 mL
CLP-BLN-L-VAP 1L (2 x 500 mL)

5% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

CLP-BLH-5 500 mL
CLP-BLH-L-VAP 1L (2 x 500 mL)

5% HCl in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

CLP-BLMA-5 500 mL
CLP-BLMA-L-VAP 1L (2 x 500 mL)

5% HCl + 1% HNO_3 in 18 Megohm ASTM Type I deionized Water

Water Blank

CLP-BLW-5 500 mL
CLP-BLW-L-VAP 1L (2 x 500 mL)

18 Megohm ASTM Type I deionized Water

Ion Chromatography
Anions

- 99.99% High Purity Starting Materials
- 18 Megohm, ASTM type I de-ionized Water
- Packaged in pre-cleaned high quality HDPE bottles.
- Ready-To-Use Mixes and Calibration Sets.
- Final Solution is filtered through a 0.2 µm filter to eliminate contaminants (such as suspended solids and microbes). This extends shelf life and protects your column.
- Standards may be used for other “Classical" or "Wet” methods.

Anions Singles

	100 µg/mL		200 µg/mL		1,000 µg/mL	
Water Matrix	**Cat. No.**	**Unit**	**Cat. No.**	**Unit**	**Cat. No.**	**Unit**
Acetate	IC-ACET-1X-1	100 mL	---	---	IC-ACET-10X-1	100 mL
	IC-ACET-1X-5	500 mL	---	---	IC-ACET-10X-5	500 mL
Bromate	---	---	---	---	IC-BROM-10X-1	100 mL
	---	---	---	---	IC-BROM-10X-5	500 mL
Bromide (Br)	IC-BR-1X-1	100 mL	IC-BR-2X-1	100 mL	IC-BR-10X-1	100 mL
	IC-BR-1X-5	500 mL	IC-BR-2X-5	500 mL	IC-BR-10X-5	500 mL
Citrate	---	---	---	---	IC-CITR-10X-1	100 mL
Chlorate	IC-CHLR-1X-1	100 mL	---	---	IC-CHLR-10X-1	100 mL
	IC-CHLR-1X-5	500 mL	---	---	IC-CHLR-10X-5	500 mL
Chloride (Cl)	IC-CL-1X-1	100 mL	IC-CL-2X-1	100 mL	IC-CL-10X-1	100 mL
	IC-CL-1X-5	500 mL	IC-CL-2X-5	500 mL	IC-CL-10X-5	500 mL
Chlorite	---	---	---	---	IC-CHLT-10X-1	100 mL
Chromate	IC-CHRM-1X-1	100 mL	---	---	IC-CHRM-10X-1	100 mL
	IC-CHRM-1X-5	500 mL	---	---	IC-CHRM-10X-5	500 mL
Fluoride (F)	IC-F-1X-1	100 mL	IC-F-2X-1	100 mL	IC-F-10X-1	100 mL
	IC-F-1X-5	500 mL	IC-F-2X-5	500 mL	IC-F-10X-5	500 mL
Formate	IC-FORM-1X-1	100 mL	---	---	IC-FORM-10X-1	100 mL
	IC-FORM-1X-5	500 mL	---	---	IC-FORM-10X-5	500 mL
Glycolate	---	---	---	---	IC-GLYC-10X-1	100 mL
Iodide	---	---	---	---	IC-I-10X-1	100 mL
Lactate	---	---	---	---	IC-LACT-10X-1	100 mL
Malate	---	---	---	---	IC-MALA-10X-1	100 mL
Maleate	---	---	---	---	IC-MALE-10X-1	100 mL
Nitrate (NO_3)	IC-NO3-1X-1	100 mL	IC-NO3-2X-1	100 mL	IC-NO3-10X-1	100 mL
	IC-NO3-1X-5	500 mL	IC-NO3-2X-5	500 mL	IC-NO3-10X-5	500 mL
Nitrate-Nitrogen (NO_3-N) †	IC-NO3-N-1X-1	100 mL	---	---	IC-NO3-N-10X-1	100 mL
	IC-NO3-N-1X-5	500 mL	---	---	IC-NO3-N-10X-5	500 mL
Nitrite (NO_2)	IC-NO2-1X-1	100 mL	IC-NO2-2X-1	100 mL	IC-NO2-10X-1	100 mL
	IC-NO2-1X-5	500 mL	IC-NO2-2X-5	500 mL	IC-NO2-10X-5	500 mL
Nitrite-Nitrogen (NO_2-N) †	IC-NO2-N-1X-1	100 mL	---	---	IC-NO2-N-10X-1	100 mL
	IC-NO2-N-1X-5	500 mL	---	---	IC-NO2-N-10X-5	500 mL
Oxalate	IC-OXAL-1X-1	100 mL	---	---	IC-OXAL-10X-1	100 mL
	IC-OXAL-1X-5	500 mL	---	---	IC-OXAL-10X-5	500 mL
Perchlorate	---	---	---	---	IC-PER-10X-1	100 mL
Phthalate	---	---	---	---	IC-PHTH-10X-1	100 mL
Phosphate (PO_4)	IC-PO4-1X-1	100 mL	IC-PO4-2X-1	100 mL	IC-PO4-10X-1	100 mL
	IC-PO4-1X-5	500 mL	IC-PO4-2X-5	500 mL	IC-PO4-10X-5	500 mL
Phosphate-Phosphorus (PO_4-P) †	IC-PO4-P-1X-1	100 mL			IC-PO4-P-10X-1	100 mL
	IC-PO4-P-1X-5	500 mL			IC-PO4-P-10X-5	500 mL
Propionate	---	---	---	---	IC-PROP-10X-1	100 mL
Succinate	---	---	---	---	IC-SUCC-10X-1	100 mL
Sulfate (SO_4)	IC-SO4-1X-1	100 mL	IC-SO4-2X-1	100 mL	IC-SO4-10X-1	100 mL
	IC-SO4-1X-5	500 mL	IC-SO4-2X-5	500 mL	IC-SO4-10X-5	500 mL
Sulfate-Sulfur (SO_4-S) †	IC-SO4-S-1X-1	100 mL	---	---	IC-SO4-S-10X-1	100 mL
	IC-SO4-S-1X-5	500 mL	---	---	IC-SO4-S-10X-5	500 mL
Sulfide	---	---	---	---	IC-SULF-10X-20ML	20 mL
Dilute NaOH, stabilizer *	---	---	---	---	IC-SULF-10X-20ML-VAP	5 x 20 mL
Tartrate	---	---	---	---	IC-TART-10X-1	100 mL

† Calculated as the element

* The matrix used in this standard might interfere with some analytical methods.

Anion Kits

IC-AN-1X-1-SET **7 x 100 mL**
IC-AN-1X-5-SET **7 x 500 mL**
Each at 100 µg/mL in Water

IC-AN-2X-1-SET **7 x 100 mL**
IC-AN-2X-5-SET **7 x 500 mL**
Each at 200 µg/mL in Water

IC-AN-10X-1-SET **7 x 100 mL**
IC-AN-10X-5-SET **7 x 500 mL**
Each at 1000 µg/mL in Water

Fluoride (F)
Chloride (Cl)
Nitrite (NO_2)
Nitrate (NO_3)
Bromide (Br)
Phosphate (PO_4)
Sulfate (SO_4)

IC-AN-R-10X-1-SET **7 x 100 mL**
IC-AN-R-10X-5-SET **7 x 500 mL**
Each at 1000 µg/mL

Fluoride (F)
Chloride (Cl)
Nitrite-Nitrogen (NO_2-N)
Nitrate-Nitrogen (NO_3-N)
Bromide (Br)
Phosphate-Phosphorus (PO_4-P)
Sulfate-Sulfur (SO_4-S)

Ion Chromatography
Anions

Anion Mixes

Anion Mix #1
IC-MAN-01-1 **100 mL**
At stated conc. (µg/mL) in Water, 5 comps.

Fluoride (F)	20
Chloride (Cl)	30
Nitrate (NO_3)	100
Phosphate (PO_4)	150
Sulfate (SO_4)	150

Anion Mix #2
IC-MAN-02-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	100
Chloride (Cl)	200
Bromide (Br)	400
Nitrate (NO_3)	400
Phosphate (PO_4)	600
Sulfate (SO_4)	400

Anion Mix #3
IC-MAN-03-1 **100 mL**
At stated conc. (µg/mL) in Water, 3 comps.

Fluoride (F)	100
Chloride (Cl)	100
Sulfate (SO_4)	100

Anion Mix #4
IC-MAN-04-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	100
Chloride (Cl)	100
Bromide (Br)	100
Nitrate (NO_3)	100
Phosphate (PO_4)	100
Sulfate (SO_4)	100

Anion Mix #6
IC-MAN-06-R1-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	1
Chloride (Cl)	5
Bromide (Br)	5
Nitrate (NO_3)	5
Phosphate (PO_4)	5
Sulfate (SO_4)	10

Anion Mix #7
IC-MAN-07-R1-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	1
Chloride (Cl)	10
Bromide (Br)	10
Nitrate (NO_3)	10
Phosphate (PO_4)	10
Sulfate (SO_4)	10

Anion Mix #8
IC-MAN-08-R1-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	10
Chloride (Cl)	20
Bromide (Br)	20
Nitrate (NO_3)	20
Phosphate (PO_4)	20
Sulfate (SO_4)	20

Anion Mix #9
IC-MAN-09-R1-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	20
Chloride (Cl)	40
Bromide (Br)	40
Nitrate (NO_3)	40
Phosphate (PO_4)	40
Sulfate (SO_4)	40

Anion Mix #10
IC-MAN-10-R1-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	25
Chloride (Cl)	50
Bromide (Br)	50
Nitrate (NO_3)	50
Phosphate (PO_4)	50
Sulfate (SO_4)	50

Technical Note

To enhance the shelf life and stability of IC products, Nitrite has been removed from mixes that contain Nitrate.

Dichloroacetate Surrogate Standard
M-300.1-SS **100 mL**
0.5 mg/mL Dichloroacetate in Water

Anion Mix #11
IC-MAN-11-1 **100 mL**
At stated conc. (µg/mL) in Water, 5 comps.

Chloride (Cl)	1000
Bromide (Br)	1000
Nitrate (NO_3)	1000
Phosphate (PO_4)	1000
Sulfate (SO_4)	1000

Anion Mix #12
IC-MAN-12-1 **100 mL**
At stated conc. (µg/mL) in Water, 5 comps.

Chloride (Cl)	15
Bromide (Br)	15
Nitrate (NO_3)	15
Phosphate (PO_4)	15
Sulfate (SO_4)	15

Anion Mix #13
IC-MAN-13-1 **100 mL**
At stated conc. (µg/mL) in Water, 3 comps.

Fluoride (F)	25
Chloride (Cl)	50
Sulfate (SO_4)	100

Anion Mix #14-R2 plus IC-NO2-N-1X is perfect for Method 300.1

Anion Mix #14 Revised
IC-MAN-14-R2-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	20
Chloride (Cl)	30
Bromide (Br)	100
Nitrogen-Nitrate (NO_3-N)	100
Phosphorus-Phosphate (PO_4-P)	150
Sulfate (SO_4)	150

Nitrite
IC-NO2-N-1X-1 **100 mL**
Nitrite (NO_2-N) 100 µg/mL

Anion Mix #14
IC-MAN-14-R3-1 **100 mL**
At stated conc. (µg/mL) in Water, 6 comps.

Fluoride (F)	20
Chloride (Cl)	30
Bromide (Br)	100
Nitrate (NO_3)	100
Phosphate (PO_4)	150
Sulfate (SO_4)	150

Anion Mix #15
IC-MAN-15-R2-1 **100 mL**
At stated conc. (µg/mL) in Water, 3 comps.

Fluoride (F)	100
Nitrate (NO_3)	100
Phosphate (PO_4)	100

Anion Mix #18
IC-MAN-18-R1-1 **100 mL**
At stated conc. (µg/mL) in Water, 5 comps.

Fluoride (F)	100
Chloride (Cl)	100
Nitrate (NO_3)	100
Phosphate (PO_4)	100
Sulfate (SO_4)	100

Technical Note

Several Nitrite concentrations that can be added just prior to analysis for maximum stability.

Nitrite

IC-NO2-10X-1	**100 mL**
Nitrite (NO_2)	1000 µg/mL
IC-NO2-1X-1	**100 mL**
Nitrite (NO_2)	100 µg/mL
IC-NO2-0.1X-1	**100 mL**
Nitrite (NO_2)	10 µg/mL

Merck equivalent Multi-Element Anion Standards

Anion Multi-Element Std I
MES-AN-01-1 **100 mL**
MES-AN-01-5 **500 mL**
At stated conc. (µg/mL) in Water, 3 comps.

Fluoride (F)	1000
Phosphate (PO_4)	1000
Bromide (Br)	1000

Anion Multi-Element Std II
MES-AN-02-1 **100 mL**
MES-AN-02-5 **500 mL**
At stated conc. (µg/mL) in Water, 3 comps.

Chloride (Cl)	1000
Nitrate (NO_3)	1000
Sulfate (SO_4)	1000

IC Multi-Element Std I
MES-IC-01-1 **100 mL**
MES-IC-01-5 **500 mL**
At stated conc. (µg/mL) Water, 5 comps.

Fluoride (F)	100
Chloride (Cl)	250
Nitrate (NO_3)	500
Sulfate (SO_4)	500
Phosphate (PO_4)	1000

IC Multi-Element Std V
MES-IC-05-1 **100 mL**
MES-IC-05-5 **500 mL**
At stated conc. (µg/mL) Water, 6 comps.

Fluoride (F)	10
Bromide (Br)	10
Nitrate (NO_3)	50
Phosphate (PO_4)	50
Chloride (Cl)	100
Sulfate (SO_4)	200

Organic Acid Salt Standards

	100 µg/mL		1,000 µg/mL	
	Cat. No.	Unit	Cat. No.	Unit
Formate	IC-FORM-1X-1	100 mL	IC-FORM-10X-1	100 mL
Water Matrix	IC-FORM-1X-5	500 mL	IC-FORM-10X-5	500 mL
Acetate	IC-ACET-1X-1	100 mL	IC-ACET-10X-1	100 mL
Water Matrix	IC-ACET-1X-5	500 mL	IC-ACET-10X-5	500 mL
Oxalate	IC-OXAL-1X-1	100 mL	IC-OXAL-10X-1	100 mL
Water Matrix	IC-OXAL-1X-5	500 mL	IC-OXAL-10X-5	500 mL
Chromate	IC-CHRM-1X-1	100 mL	IC-CHRM-10X-1	100 mL
Water Matrix	IC-CHRM-1X-5	500 mL	IC-CHRM-10X-5	500 mL
Glycolate	----------	--	IC-GLYC-10X-1	100 mL
Water Matrix				
Lactate	----------	--	IC-LACT-10X-1	100 mL
Water Matrix				
Malate	----------	--	IC-MALA-10X-1	100 mL
Water Matrix				
Maleate	----------	--	IC-MALE-10X-1	100 mL
Water Matrix				
Phthalate	----------	--	IC-PHTH-10X-1	100 mL
Water Matrix				
Propionate	----------	--	IC-PROP-10X-1	100 mL
Water Matrix				
Succinate	----------	--	IC-SUCC-10X-1	100 mL
Water Matrix				
Tartrate	----------	--	IC-TART-10X-1	100 mL
Water Matrix				

Method 314.0 Perchlorate in Drinking Water by IC

Perchlorate has become an analyte of environmental interest since being detected in a number of drinking and groundwater supplies located in Midwestern states. EPA method 314.0 was released as an approved method to achieve the required sensitivity.

Perchlorate Standard
IC-PER-10X-1 **100 mL**
1000 µg/mL in Water

Perchlorate

Mixed Common Anion Stock
M-314.0-MCA-250X-1 **100 mL**
25 mg/mL in Water 3 comps.

Chloride Carbonate
Sulfate

Conductivity Meter Calibration Std.
M-314.0-CMCS-1 **100 mL**

1410 µs/cm @ 25˚C in Water

Method 314.0 Perchlorate Calibration Set
M-314.0-SET **3 x 100 mL**

IC-PER-10X-1 M-314.0-CMCS-1
M-314.0-MCA-250X-1

Ion Chrom Eluents

	50 mL		100 mL	
0.5 M Sodium bicarbonate	IC-ELU-01-0.5	50 mL	IC-ELU-01-1	100 mL
(100X concentrate)	IC-ELU-01-0.5-PAK	5 x 50 mL	IC-ELU-01-1-PAK	5 x 100 mL
0.5 M Sodium carbonate	IC-ELU-02-0.5	50 mL	IC-ELU-02-1	100 mL
(100X concentrate)	IC-ELU-02-0.5-PAK	5 x 50 mL	IC-ELU-02-1-PAK	5 x 100 mL
0.18 M Sodium carbonate /	IC-ELU-03-0.5	50 mL	IC-ELU-03-1	100 mL
0.17 M Sodium bicarbonate	IC-ELU-03-0.5-PAK	5 x 50 mL	IC-ELU-03-1-PAK	5 x 100 mL
(100X concentrate)				

Technical Note

Ready to dilute concentrates. Open a fresh bottle and dilute the volume (50 mL to 5 L or 100 mL to 10 L) and be assured of a fresh uncontaminated mobile phase

Ion Chromatography
Cations

Cation Singles

Matrix		100 µg/mL Cat. No.	100 µg/mL Unit	200 µg/mL Cat. No.	200 µg/mL Unit	1,000 µg/mL Cat. No.	1,000 µg/mL Unit
Calcium (Ca)		IC-CA-1X-1	100 mL	IC-CA-2X-1	100 mL	IC-CA-10X-1	100 mL
Water, tr. HNO_3		IC-CA-1X-5	500 mL	IC-CA-2X-5	500 mL	IC-CA-10X-5	500 mL
Ammonium (NH_4) *		IC-NH4-1X-1	100 mL	IC-NH4-2X-1	100 mL	IC-NH4-10X-1 †	100 mL
Water		IC-NH4-1X-5	500 mL	IC-NH4-2X-5	500 mL	IC-NH4-10X-5 †	500 mL
Ammonium-Nitrogen (NH_4-N) †		IC-NH4-N-1X-1	100 mL	---	---	IC-NH4-N-10X-1	100 mL
Water		IC-NH4-N-1X-5	500 mL	---	---	IC-NH4-N-10X-5	500 mL
Magnesium (Mg)		IC-MG-1X-1	100 mL	IC-MG-2X-1	100 mL	IC-MG-10X-1	100 mL
Water, tr. HNO_3		IC-MG-1X-5	500 mL	IC-MG-2X-5	500 mL	IC-MG-10X-5	500 mL
Potassium (K)		IC-K-1X-1	100 mL	IC-K-2X-1	100 mL	IC-K-10X-1	100 mL
Water, tr. HNO_3		IC-K-1X-5	500 mL	IC-K-2X-5	500 mL	IC-K-10X-5	500 mL
Sodium (Na)		IC-NA-1X-1	100 mL	IC-NA-2X-1	100 mL	IC-NA-10X-1	100 mL
Water, tr. HNO_3		IC-NA-1X-5	500 mL	IC-NA-2X-5	500 mL	IC-NA-10X-5	500 mL
Lithium (Li)		IC-LI-1X-1	100 mL	IC-LI-2X-1	100 mL	IC-LI-10X-1	100 mL
Water, tr. HNO_3		IC-LI-1X-5	500 mL	IC-LI-2X-5	500 mL	IC-LI-10X-5	500 mL
Barium (Ba)		IC-BA-1X-1	100 mL	IC-BA-2X-1	100 mL	IC-BA-10X-1	100 mL
Water, tr. HNO_3		IC-BA-1X-5	500 mL	IC-BA-2X-5	500 mL	IC-BA-10X-5	500 mL
Strontium (Sr)		IC-SR-1X-1	100 mL	IC-SR-2X-1	100 mL	IC-SR-10X-1	100 mL
Water, tr. HNO_3		IC-SR-1X-5	500 mL	IC-SR-2X-5	500 mL	IC-SR-10X-5	500 mL
Sets of items	**8 x 100 mL**	IC-CAT-1X-1-SET		IC-CAT-2X-1-SET		IC-CAT-10X-1-SET	
listed above	**8 x 500 mL**	IC-CAT-1X-5-SET		IC-CAT-2X-5-SET		IC-CAT-10X-5-SET	

* 1,000 µg/mL as Ammonium (NH_4) Other Nitrogen species equivalents are: NH_3 (Ammonia) = 944 µg/mL and N (Nitrogen) = 776 µg/mL
† Calculated as the element

Cation Mixes

Cation Mix #1
IC-MCA-01-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 6 comps.

Calcium (Ca)	1000
Ammonium (NH_4)	400
Magnesium (Mg)	200
Potassium (K)	200
Sodium (Na)	200
Lithium (Li)	50

Cation Mix #2
IC-MCA-02-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 6 comps.

Calcium (Ca)	100
Ammonium (NH_4)	100
Magnesium (Mg)	100
Potassium (K)	100
Sodium (Na)	100
Lithium (Li)	100

Cation Mix #3
IC-MCA-03-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 4 comps.

Calcium (Ca)	100
Potassium (K)	100
Sodium (Na)	50
Lithium (Li)	10

Cation Mix #4
IC-MCA-04-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 4 comps.

Calcium (Ca)	400
Magnesium (Mg)	200
Barium (Ba)	1600
Strontium (Sr)	600

Cation Mix #5
IC-MCA-05-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 4 comps.

Ammonium (NH_4)	3
Potassium (K)	6
Sodium (Na)	3
Lithium (Li)	0.5

Cation Mix #6
IC-MCA-06-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 6 comps.

Calcium (Ca)	2
Ammonium (NH_4)	1.5
Magnesium (Mg)	2
Potassium (K)	2.5
Sodium (Na)	1.5
Lithium (Li)	0.2

Traceability to NIST SRM by Wet Chemical / Gravimetric Assay

Traceability to NIST SRM by Instrumental Analysis

Reference to NIST Traceability during product preparation

Merck equivalent Multi-Element Cation Standards

IC Multi-Element Std VI
MES-IC-06-1 **100 mL**
MES-IC-06-5 **500 mL**
At stated conc. (µg/mL) 5 comps.
Water, tr. HNO_3

Ammonium (NH4)	10
Potassium (K)	50
Sodium (Na)	100
Calcium (Ca)	100
Magnesium (Mg)	100

IC Multi-Element Std VII
MES-IC-07-1 **100 mL**
MES-IC-07-5 **500 mL**
At stated conc. (µg/mL) 9 comps.
Water, tr. HNO_3

Ammonium (NH_4)	100
Barium (Ba)	100
Calcium (Ca)	100
Potassium (K)	100
Lithium (Li)	100
Sodium (Na)	100
Magnesium (Mg)	100
Manganese (Mn)	100
Strontium (Sr)	100

Wet Chemicals

Our Wet Chemical Standards are prepared from the highest quality raw material according to ASTM, EPA or "Standard Methods" [1] procedures. All balances used for preparation are calibrated regularly against NIST traceable weights. Each batch of finished product is analyzed to verify concentration against NIST standards when possible. All of our Wet Chemical standards are subjected to the same rigorous quality control procedures as our ICP and IC standards.

1 Standard Methods for the Examination of Water and Wastewater. American Public Health Association, American Water Works Association, Water Environment Federation

Inorganic Constituents

Bromide
IC-BR-10X-1 — **100 mL**
1000 µg/mL Bromide in Water

Method 300.1 Ion Chrom Standard Revised
IC-MAN-14-R2-1 — **100 mL**
At stated conc. (µg/mL) in Water — 6 comps.

F (Fluoride)	20
Cl (Chloride)	30
Br (Bromide)	100
NO_3-N (Nitrate-Nitrogen)	100
PO_4-P (Phosphate-Phosphorus)	150
SO_4 (Sulfate)	150

Technical Note
This product was designed to more closely meet the EPA standard by having the concentrations for the nutrients calculated back to the element rather than the anion.

Dichloroacetate Surrogate Standard
M-300.1-SS — **100 mL**
0.5 mg/mL Dichloroacetate in Water

Cyanide
WC-CN-1X-1 — **100 mL**
WC-CN-1X-5 — **500 mL**
100 µg/mL Cyanide in 2% NaOH

WC-CN-10X-1 — **100 mL**
WC-CN-10X-5 — **500 mL**
1000 µg/mL Cyanide in 2% NaOH

Chloride
IC-CL-10X-1 — **100 mL**
1000 µg/mL Chloride in Water

Total Residual Chlorine
WC-TRC-10X-10ML — **10 mL**
1000 µg/mL Chlorine in Water

Fluoride
IC-F-10X-1 — **100 mL**
1000 µg/mL Fluoride in Water

Iodide
IC-I-10X-1 — **100 mL**
1000 µg/mL Iodide in Water

pH
WC-PH-4-1 — **100 mL**
WC-PH-4-5 — **500 mL**
pH of 4.0 in Water

WC-PH-7-1 — **100 mL**
WC-PH-7-5 — **500 mL**
pH of 7.0 in Water

WC-PH-10-1 — **100 mL**
WC-PH-10-5 — **500 mL**
pH of 10.0 in Water

Phosphorus - Total
IC-PO4-P-10X-1 — **100 mL**
1000 µg/mL Phosphorus in Water

Technical Note
Can also be used for ortho-phosphate analysis.

Technical Note
Nitrogen Species are all calculated back to Nitrogen - Not the Anion or Cation species.

Nitrogen - Ammonium
IC-NH4-N-10X-1 — **100 mL**
1000 µg/mL Ammonium-Nitrogen in Water

Nitrogen - Nitrite
IC-NO2-N-10X-1 — **100 mL**
1000 µg/mL Nitrite-Nitrogen in Water

Nitrogen - Nitrate
IC-NO3-N-10X-1 — **100 mL**
1000 µg/mL Nitrate-Nitrogen in Water

Silica
WC-SIO2-10X-1 — **100 mL**
1000 µg/mL as Silica (SiO_2) in Water tr. HF

Sulfate
IC-SO4-10X-1 — **100 mL**
1000 µg/mL Sulfate (SO_4) in Water

Hexavalent Chromium (Cr^{+6})
WC-HEX-10X-1 — **100 mL**
1000 µg/mL in Water

Physical & Aggregate Properties

These Standards are concerned primarily with measuring physical characteristics of a sample as opposed to the chemical concentrations. These analytes are measured frequently in both drinking and waste waters.

Turbidity
WC-TURB-4X-1 — **100 mL**
400 NTU non-ratio Turbidity Standard

A stable solution of microspheres in an aqueous matrix can be diluted in turbidity free water for a calibration curve. Do not shake prior to use.

Alkalinity
WC-ALK-10X-1 — **100 mL**
1000 µg/mL $CaCO_3$ to pH 4.5

Hardness
WC-HARD-10X-1 — **100 mL**
1000 µg/mL equivalent $CaCO_3$

A combination of Ca and Mg to give an approx. concentration of 1000 µg/mL $CaCO_3$. Hardness µg/mL equivalent $CaCO_3$ = 2.497 [Ca µg/mL] + 4.118 [Mg µg/mL]

Conductivity
At stated conc. (µmhos) in Water

WC-COND-10X-1	1,000	**100 mL**
WC-COND-10X-5	1,000	**500 mL**
WC-COND-1.47X-1	147	**100 mL**
WC-COND-1.47X-5	147	**500 mL**
WC-COND-14.13X-1	1,413	**100 mL**
WC-COND-14.13X-5	1,413	**500 mL**
WC-COND-129X-1	12,900	**100 mL**
WC-COND-129X-5	12,900	**500 mL**

Methylene Blue Activated Substance (MBAS)
WC-MBAS-R1-10X-1 — **100 mL**
1000 µg/mL in Water

Solids
WC-SOL — **sample**
2 comps.
1000 ppm TSS (Total Suspended Solids) and 1000 ppm TDS (Total Disolved Solids) for a 2000 ppm TS (Total Solids).

Dilute to 100 mL. Rinse vial and cap several times to recover all solids.

Dissolved Solids
WC-SOL-DS-1 — **100 mL**
1000 µg/mL in Water

Suspended Solids
WC-SOL-SS-1 — **100 mL**
1000 µg/mL in Water

Shake well before pouring and rinse bottle thoroughly to completely transfer contents.

Wet Chemicals

Aggregate Organic

Rather than determining individual organic analytes, these Standards are used to determine organic matter in broad categories, based primarily on how they react.

Biochemical Oxygen Demand (BOD)

WC-BOD-10ML **10 mL**
100 µg/mL BOD (After Dilution)

75 mg/L glucose and 75 mg/L glutamic acid provided in a flame sealed ampule. Dilute to 1L immediately before use.

Absorbable Organic Halogens (AOX)

WC-AOX-2X-1 **100 mL**
200 µg/mL Chlorine in Water

Oil and Grease

WC-OILG-10X-1 **100 mL**
1000 µg/mL Total Oil and Grease in n-Propanol

Contains 500 µg/mL vegetable oil and 500 µg/mL of petroleum oil. Shake well before use.

Phenols

WC-PHEN-10X-1 **100 mL**
1000 µg/mL Phenol in water

Chemical Oxygen Demand (COD)

WC-COD-5X-10ML **10 mL**
500 µg/mL COD in Water

WC-COD-0.5X-1 **100 mL**
50 µg/mL COD in Water

WC-COD-1X-1 **100 mL**
100 µg/mL COD in Water

WC-COD-5X-1 **100 mL**
500 µg/mL COD in Water

WC-COD-10X-1 **100 mL**
1000 µg/mL COD in Water

WC-COD-50X-1 **100 mL**
5000 µg/mL COD in Water

WC-COD-100X-1 **100 mL**
10000 µg/mL COD in Water

Total Organic Carbon (TOC)

WC-TOC-10X-1 **100 mL**
1000 µg/mL TOC in water, tr. H_2SO_4

Total Inorganic Carbon (TIC)

WC-TIC-10X-1 **100 mL**
1000 µg/mL Total Inorganic Carbon in Water

Total Organic Halides (TOX)

WC-TOX-10X-1 **1 mL**
WC-TOX-10X-1-PAK ***SAVE*** **5 x 1 mL**
1000 µg/mL in MeOH

Total Organic Nitrogen (TON)

WC-TON-10X-1 **100 mL**
1000 µg/mL Total Organic Nitrogen in Water

Total Kjeldahl Nitrogen (TKN)

WC-TKN-10X-1 **100 mL**
1000 µg/mL Total Kjeldahl Nitrogen in Water

D8083 Nitrogen in Water

Total Nitrogen Stock Calibration Standard

D-8083-TN **100 mL**
Nitrogen @ 1000 µg/mL

Total Nitrogen Stock Laboratory Control Standard

D-8083-LCS **100 mL**
Nitrogen @ 1000 µg/mL

Stock TON Test Solution

D-8083-TON **100 mL**
Nitrogen @ 1000 µg/mL

ASTM D8083 Nitrogen Calibration Set

D-8083-SET **3 x 100 mL**
D-8083-TN, D-8083-LCS, D-8083-TON

TPH, Oil and Grease
EPA Methods

Method 1664 Oil, Grease & Total Petroleum Hydrocarbon (TPH)

Precision and Recovery (PAR) Spiking Solution

M-1664-5ML **1 x 5 mL**
M-1664-5ML-PAK ***SAVE*** **5 x 5 mL**
4.0 mg/mL each in Acetone 2 comps.

M-1664-20ML **1 x 20 mL**
M-1664-20ML-PAK **SAVE** **5 x 20 mL**
4.0 mg/mL each in Acetone 2 comps.

n-Hexadecane
Stearic acid

Technical Note

This Precison and Recovery (PAR) Spiking Solution was developed for Method 1664. This performance based method was developed to replace previous gravimetric procedures incorporating Freon-113 as the extraction solvent for the determination of Oil and Grease and Total Petroleum Hydrocarbons. Each standard is packaged in a flame sealed ampule.

Method 413.2 & 418.1 Total Petroleum Hydrocarbon Analysis by IR

Oil, Grease & Petroleum Hydrocarbon Concentrates Mix

M-418-CON **1 x 1 mL**
At stated Vol.% 3 comps.

Chlorobenzene	25.0	*n*-Hexadecane	37.5
Isooctane	37.5		

Oil, Grease and Petroleum Hydrocarbon Total Recoverable (IR Method)

M-418 **1 x 1 mL**
M-418-PAK ***SAVE*** **5 x 1 mL**
At stated conc. (mg/mL) in Freon 113 3 comps.

Chlorobenzene	1.05	Isooctane	1.55
n-Hexadecane	1.55		

Method 8440 Total Petroleum Hydrocarbon Analysis

Total Recoverable Petroleum Hydrocarbon Mix

M-8440 **1 x 1 mL**
M-8440-PAK ***SAVE*** **5 x 1 mL**
At stated Wt.% in Tetrachloroethene 3 comps.

Chlorobenzene	0.10	Isooctane	0.15
n-Hexadecane	0.15		

Silica Gel Cleanup Calibration Solution

M-8440-SGC **1 x 1 mL**
M-8440-SGC-PAK ***SAVE*** **5 x 1 mL**
10.0 mg/mL in Tetrachloroethene

Corn Oil

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON **1 x 1 mL**
M-8440-CON-PAK ***SAVE*** **5 x 1 mL**
At stated Vol.% 3 comps.

Chlorobenzene	25.0	Isooctane	37.5
n-Hexadecane	37.5		

Multi-Element ICP and ICP-MS

Table of Contents

Custom Formulations

Meet your specific needs.

Request a custom formulation on our website or contact our Inorganic Technical Service Department email: inotech@accustandard.com

Inorganic products containing acid generally require a hazardous fee for air shipments.

Inorganic products in water generally do not.

ICP
Multi-Element QC and Second Source QC

Quality Control Standards

Quality Control Standards can be used for many different applications. QC Standards are ideal for calibration when performing NPDES monitoring requirements and can be used for standard curve checks, inter-element correction methods, interference checks or any other unique application.

QC Standard #1

QCS-01-1 **100 mL**
QCS-01-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 23 comps.

- Antimony (Sb)
- Arsenic (As)
- Beryllium (Be)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Lithium (Li)
- Magnesium (Mg)
- Manganese (Mn)
- Molybdenum (Mo)
- Nickel (Ni)
- Phosphorus (P)
- Selenium (Se)
- Strontium (Sr)
- Thallium (Tl)
- Tin (Sn)
- Titanium (Ti)
- Vanadium (V)
- Zinc (Zn)

QC Standard #2

QCS-02-1 **100 mL**
QCS-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 7 comps

Aluminum (Al)	100
Barium (Ba)	100
Boron (B)	100
Potassium (K)	1000
Silicon (Si) †	500
Silver (Ag)	50
Sodium (Na)	100

† 1070 µg/mL as SiO_2

QC Standard #2R

QCS-02-R1-1 **100 mL**
QCS-02-R1-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 7 comps.

- Aluminum (Al)
- Barium (Ba)
- Boron (B)
- Potassium (K)
- Silicon (Si) †
- Silver (Ag)
- Sodium (Na)

† 214 µg/mL as SiO_2

QC Standard #3

QCS-03-1 **100 mL**
QCS-03-5 **500 mL**
100 µg/mL each in 5% HNO_3 15 comps.

- Aluminum (Al)
- Barium (Ba)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Magnesium (Mg)
- Manganese (Mn)
- Nickel (Ni)
- Sodium (Na)
- Titanium (Ti)
- Zinc (Zn)

QC Standard #4

QCS-04-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 19 comps.

Aluminum (Al)	100
Barium (Ba)	5
Beryllium (Be)	1
Bismuth (Bi)	200
Boron (B)	15
Cadmium (Cd)	20
Chromium (Cr)	25
Cobalt (Co)	20
Copper (Cu)	20
Gallium (Ga)	150
Indium (In)	200
Iron (Fe)	15
Lead (Pb)	200
Manganese (Mn)	5
Nickel (Ni)	50
Silver (Ag)	50
Strontium (Sr)	1
Thallium (Tl)	40
Zinc (Zn)	20

QC Standard Sets

QCS-1-SET **3 x 100 mL**
QCS-01-1, QCS-02-1,QCS-03-1
QCS-5-SET **3 x 500 mL**
QCS-01-5, QCS-02-5, QCS-03-5
QCS-R1-1-SET **3 x 100 mL**
QCS-01-1, QCS-02-R1-1,QCS-03-1
QCS-R1-5-SET **3 x 500 mL**
QCS-01-5, QCS-02-R1-5, QCS-03-5

Second Source QC Standards

These Alternative Source Standards exactly match a formulation from another source you may be already using. These formulations save you the cost of a custom formulation by providing you with true independent lots.

Second Source QC Standard #1

QCS-ASL-7-1 **100 mL**
QCS-ASL-7-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 tr. HF 7 comps.

Aluminum (Al)	100
Barium (Ba)	100
Boron (B)	100
Potassium (K)	1000
Silicon (Si)	50
Silver (Ag)	100
Sodium (Na)	100

- **NIST Traceable**
- **Independent Lots**
- **Exact Match**

Second Source QC Standard #2

QCS-ASL-21-1 **100 mL**
QCS-ASL-21-5 **500 mL**
100 µg/mL each in 2-5% HNO_3 tr. HF 21 comps.

- Antimony (Sb)
- Arsenic (As)
- Beryllium (Be)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Lithium (Li)
- Magnesium (Mg)
- Manganese (Mn)
- Molybdenum (Mo)
- Nickel (Ni)
- Selenium (Se)
- Strontium (Sr)
- Thallium (Tl)
- Titanium (Ti)
- Vanadium (V)
- Zinc (Zn)

Match Other Supplier's Products.
Use as a True Second Source.

Second Source QC Standard #3

QCS-ASL-19-1 **100 mL**
QCS-ASL-19-5 **500 mL**
100 µg/mL each in 2-5% HNO_3 tr. HF 19 comps.

- Antimony (Sb)
- Arsenic (As)
- Beryllium (Be)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Magnesium (Mg)
- Manganese (Mn)
- Molybdenum (Mo)
- Nickel (Ni)
- Selenium (Se)
- Thallium (Tl)
- Titanium (Ti)
- Vanadium (V)
- Zinc (Zn)

ICP
Screening Standards and Groundwater & Wastewater

Screening Standards

These four Qualitative Standards can be combined to scan samples quickly and easily for elements present. They should be used for element identification only. The concentration of each element is approximately 10 µg/mL. To screen for **all 69 elements** these 4 semi-quantitative standards can be blended together and used immediately.

Semi-Quantitative Standard #1

SQS-01-1 **100 mL**

10 µg/mL each in 2-5% HNO_3 tr. HF 33 comps.

Aluminum (Al)	Sodium (Na)
Arsenic (As)	Neodymium (Nd)
Barium (Ba)	Phosphorus (P)
Bismuth (Bi)	Lead (Pb)
Calcium (Ca)	Praseodymium (Pr)
Cadmium (Cd)	Scandium (Sc)
Cerium (Ce)	Selenium (Se)
Dysprosium (Dy)	Samarium (Sm)
Erbium (Er)	Strontium (Sr)
Europium (Eu)	Terbium (Tb)
Gallium (Ga)	Thorium (Th)
Gadolinium (Gd)	Thallium (Tl)
Holmium (Ho)	Thulium (Tm)
Indium (In)	Uranium (U)
Lanthanum (La)	Yttrium (Y)
Lutetium (Lu)	Ytterbium (Yb)
Magnesium (Mg)	

Semi-Quantitative Standard #2

SQS-02-R1-1 **100 mL**

10 µg/mL each in 2-5% HNO_3 tr. HCl tr. HF 33 comps.

Boron (B)	Platinum (Pt)
Beryllium (Be)	Rubidium (Rb)
Cobalt (Co)	Rhenium (Re)
Chromium (Cr)	Rhodium (Rh)
Cesium (Cs)	Ruthenium (Ru)
Copper (Cu)	Sulfur (S)
Iron (Fe)	Antimony (Sb)
Germanium (Ge)	Silicon (Si)
Hafnium (Hf)	Tin (Sn)
Iridium (Ir)	Tantalum (Ta)
Potassium (K)	Tellurium (Te)
Lithium (Li)	Titanium (Ti)
Manganese (Mn)	Vanadium (V)
Molybdenum (Mo)	Tungsten (W)
Niobium (Nb)	Zinc (Zn)
Nickel (Ni)	Zirconium (Zr)
Palladium (Pd)	

Semi-Quantitative Standard #3

SQS-03-1 **100 mL**

10 µg/mL each in 2-5% HNO_3 2 comps.

Mercury (Hg) Silver (Ag)

Semi-Quantitative Standard #4

SQS-04-1 **100 mL**

10 µg/mL each in 5% HCl

Gold (Au)

Screening Standard Set

SQS-R1-1-SET **4 x 100 mL**

SQS-01-1 SQS-02-R1-1
SQS-03-1 SQS-04-1

Technical Note

To verify screening results, use single element standards to confirm and quantify the concentration.

Groundwater & Wastewater Standards

Trace Metals I, II, III

Trace Metals I

WPTM-01-1 **100 mL**
WPTM-01-5 **500 mL**

At stated conc. (µg/mL) in 5% HNO_3 15 comps.

Aluminum (Al)	500
Arsenic (As)	100
Beryllium (Be)	100
Cadmium (Cd)	25
Chromium (Cr)	100
Cobalt (Co)	100
Copper (Cu)	100
Iron (Fe)	100
Lead (Pb)	100
Manganese (Mn)	100
Mercury (Hg)	5
Nickel (Ni)	100
Selenium (Se)	25
Vanadium (V)	250
Zinc (Zn)	100

Trace Metals II

WPTM-02-1 **100 mL**
WPTM-02-5 **500 mL**

At stated conc. (µg/mL) in 5% HNO_3 3 comps.

Antimony (Sb)	20
Silver (Ag)	10
Thallium (Tl)	20

Trace Metal Sets

WPTM-1-SET **3 x 100 mL**

WPTM-01-1 WPTM-02-1
WPTM-03-1

WPTM-5-SET **3 x 500 mL**

WPTM-01-5 WPTM-02-5
WPTM-03-5

Trace Metals III

WPTM-03-1 **100 mL**
WPTM-03-5 **500 mL**

At stated conc. (µg/mL) in 5% HNO_3 tr. HF 6 comps.

Barium (Ba)	500
Calcium (Ca)	500
Magnesium (Mg)	100
Molybdenum (Mo)	500
Potassium (K)	100
Sodium (Na)	500

Alternate Metals for Groundwater and Wastewater Analysis

Alternate Metals I

WPAM-01-1 **100 mL**
WPAM-01-5 **500 mL**

At stated conc. (µg/mL) in 2% HNO_3 11 comps.

Aluminum (Al)	20
Antimony (Sb)	5
Beryllium (Be)	5
Cobalt (Co)	10
Copper (Cu)	10
Iron (Fe)	20
Manganese (Mn)	10
Nickel (Ni)	10
Thallium (Tl)	5
Vanadium (V)	20
Zinc (Zn)	10

Alternate Metals III

WPAM-03-1 **100 mL**
WPAM-03-5 **500 mL**

At stated conc. (µg/mL) in 2% HNO_3 4 comps.

Calcium (Ca)	500
Magnesium (Mg)	100
Potassium (K)	100
Sodium (Na)	500

Alternate Trace Metal Sets

WPAM-1-SET **2 x 100 mL**

WPAM-01-1 WPAM-03-1

WPAM-5-SET **2 x 500 mL**

WPAM-01-5 WPAM-03-5

SDWA Standards

For use in SW-846, Method 1310 and U.S. NPDWR 40CFR Part 141. The three Drinking Water Standards are used for monitoring drinking water and/or ground and surface water.

Primary Drinking Water Metals

SDWA-01-1 **100 mL**
SDWA-01-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 7 comps.

Arsenic (As)	10
Barium (Ba)	100
Cadmium (Cd)	5
Chromium (Cr)	10
Lead (Pb)	10
Selenium (Se)	5
Silver (Ag)	10

Secondary Drinking Water Metals

SDWA-02-1 **100 mL**
SDWA-02-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 4 comps.

Copper (Cu)	100
Iron (Fe)	30
Manganese (Mn)	5
Zinc (Zn)	500

Mercury Solution

SDWA-03-1 **100 mL**
SDWA-03-5 **500 mL**
10 µg/mL in 5% HNO_3

Mercury (Hg)

Drinking Water Sets

SDWA-1-SET **3 x 100 mL**
SDWA-01-1 SDWA-02-1 SDWA-03-1

SDWA-5-SET **3 x 500 mL**
SDWA-01-5 SDWA-02-5 SDWA-03-5

Standards for Analytes covered in the Safe Drinking Water Act (SDWA)

Primary Metals for Analysis by ICP

Contains all approved elements
SDWA-04-1 **100 mL**
SDWA-04-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 9 comps.

Arsenic (As)	100
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Calcium (Ca)	100
Chromium (Cr)	10
Copper (Cu)	10
Nickel (Ni)	10
Sodium (Na)	100

Primary Metals for Analysis by GFAA

Contains GFAA approved elements
SDWA-05-1 **100 mL**
SDWA-05-5 **500 mL**
10 µg/mL each in 2-5% HNO_3 9 comps.

Antimony (Sb)
Arsenic (As)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Lead (Pb)
Nickel (Ni)
Selenium (Se)
Thallium (Tl)

Primary Metals for Analysis by ICP-MS

Contains all approved elements
SDWA-06-MS-1 **100 mL**
SDWA-06-MS-5 **500 mL**
10 µg/mL each in 2% HNO_3 11 comps.

Antimony (Sb)
Arsenic (As)
Barium (Ba)
Beryllium (Be)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Lead (Pb)
Nickel (Ni)
Selenium (Se)
Thallium (Tl)

Primary Metals for Analysis by GFAA/ICP/ICP-MS

SDWA-07-1 **100 mL**
SDWA-07-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF 14 comps.

Antimony (Sb)	100
Arsenic (As)	100
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Calcium (Ca)	100
Chromium (Cr)	10
Copper (Cu)	10
Lead (Pb)	10
Nickel (Ni)	10
Selenium (Se)	10
Silicon (Si) †	100
Sodium (Na)	100
Thallium (Tl)	10

† 214 µg/mL as SiO_2

Secondary Metals for Analysis by GFAA/ICP/ICP-MS

SDWA-08-1 **100 mL**
SDWA-08-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 5 comps.

Aluminum (Al)	10
Iron (Fe)	100
Manganese (Mn)	10
Silver (Ag)	10
Zinc (Zn)	10

Primary & Secondary Metals for Analysis by GFAA/ICP/ICP-MS

Contains all Primary & Secondary Metals
SDWA-09-1 **100 mL**
SDWA-09-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF 19 comps.

Aluminum (Al)	10
Antimony (Sb)	100
Arsenic (As)	100
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Calcium (Ca)	100
Chromium (Cr)	10
Copper (Cu)	10
Iron (Fe)	100
Lead (Pb)	10
Manganese (Mn)	10
Nickel (Ni)	10
Selenium (Se)	10
Silicon (Si) †	100
Silver (Ag)	10
Sodium (Na)	100
Thallium (Tl)	10
Zinc (Zn)	10

† 214 µg/mL as SiO_2

MISA Test Group 29 Analysis Calibration Standards

For use in MISA Test Group 29 Analysis or general use standards. Set of six standards contains 69 elements at 100 µg/mL each. Ideal for the laboratory that wants to analyze for everything.

MISA Standard 1
Rare Earth Metals

MISA-01-1 — **100 mL**
100 µg/mL each in 5% HNO_3 — 18 comps.

- Cerium (Ce)
- Dysprosium (Dy)
- Erbium (Er)
- Europium (Eu)
- Gadolinium (Gd)
- Holmium (Ho)
- Lanthanum (La)
- Lutetium (Lu)
- Neodymium (Nd)
- Praseodymium (Pr)
- Scandium (Sc)
- Samarium (Sm)
- Terbium (Tb)
- Thorium (Th)
- Thulium (Tm)
- Uranium (U)
- Ytterbium (Yb)
- Yttrium (Y)

MISA Standard 2
Precious Metals

MISA-02-1 — **100 mL**
100 µg/mL each in 10% HCl — 6 comps.

- Gold (Au)
- Iridium (Ir)
- Palladium (Pd)
- Platinum (Pt)
- Rhodium (Rh)
- Ruthenium (Ru)

MISA Standard 3
Tellurium

MISA-03-1 — **100 mL**
100 µg/mL in 10% HCl

- Tellurium (Te)

MISA Standard 4
Alkali, Alkaline Earth, Non-Transition Group

MISA-04-1 — **100 mL**
100 µg/mL each in 10% HNO_3 — 16 comps.

- Aluminum (Al)
- Arsenic (As)
- Barium (Ba)
- Beryllium (Be)
- Bismuth (Bi)
- Calcium (Ca)
- Cesium (Cs)
- Gallium (Ga)
- Indium (In)
- Lithium (Li)
- Magnesium (Mg)
- Potassium (K)
- Rubidium (Rb)
- Selenium (Se)
- Sodium (Na)
- Strontium (Sr)

MISA Calibration Set

MISA-1-SET — **6 x 100 mL**

MISA-01-1	MISA-03-1	MISA-05-1
MISA-02-1	MISA-04-1	MISA-06-1

MISA Standard 5
Fluoride Soluble Group

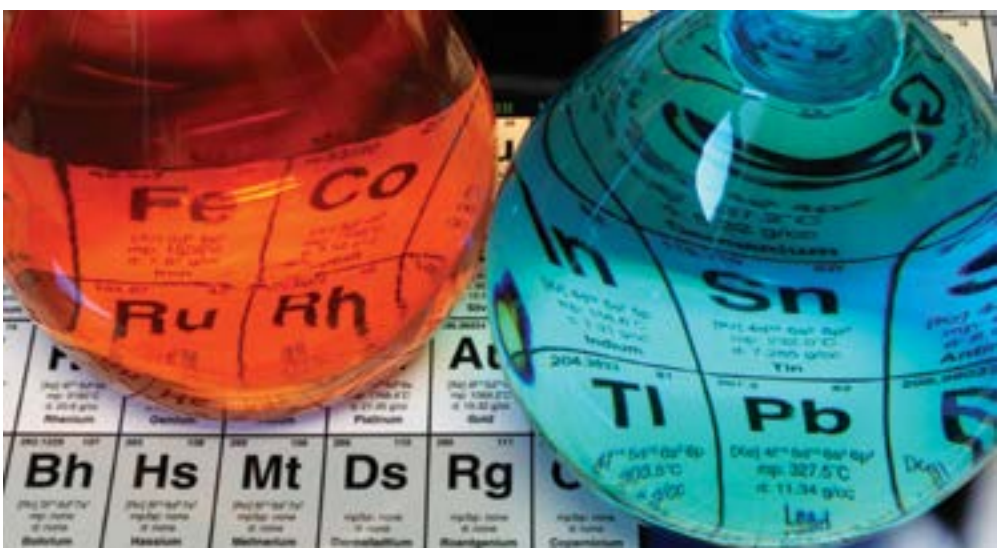
MISA-05-1 — **100 mL**
100 µg/mL each in 5% HNO_3 tr. HF — 15 comps.

- Antimony (Sb)
- Boron (B)
- Germanium (Ge)
- Hafnium (Hf)
- Molybdenum (Mo)
- Niobium (Nb)
- Phosphorus (P)
- Rhenium (Re)
- Silicon (Si)
- Sulfur (S)
- Tantalum (Ta)
- Tin (Sn)
- Titanium (Ti)
- Tungsten (W)
- Zirconium (Zr)

MISA Standard 6
Transition Metals

MISA-06-1 — **100 mL**
100 µg/mL each in 10% HNO_3 — 13 comps.

- Cadmium (Cd)
- Cobalt (Co)
- Copper (Cu)
- Chromium (Cr)
- Iron (Fe)
- Lead (Pb)
- Manganese (Mn)
- Mercury (Hg)
- Nickel (Ni)
- Silver (Ag)
- Thallium (Tl)
- Vanadium (V)
- Zinc (Zn)



ICP
Contract Laboratory Program (CLP)

Calibration Check Standards

Calibration Standard #1
CLP-CAL-01-1 **100 mL**
5000 µg/mL each in 5% HNO_3 4 comps.

Calcium (Ca)	Potassium (K)
Magnesium (Mg)	Sodium (Na)

Calibration Standard #2
CLP-CAL-02-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Chromium (Cr)	100
Manganese (Mn)	150
Nickel (Ni)	400
Silver (Ag)	100
Zinc (Zn)	200

Calibration Standard #3
CLP-CAL-03-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 7 comps.

Aluminum (Al)	2000
Barium (Ba)	2000
Beryllium (Be)	50
Cobalt (Co)	500
Copper (Cu)	250
Iron (Fe)	1000
Vanadium (V)	500

Calibration Standard #4
CLP-CAL-04-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Arsenic (As)	100
Cadmium (Cd)	50
Lead (Pb)	50
Selenium (Se)	50
Thallium (Tl)	100

Calibration Standard #5
CLP-CAL-05-1 **100 mL**
600 µg/mL in 2% HNO_3

Antimony (Sb)

Calibration Standard #6
CLP-CAL-06-1 **100 mL**
100 µg/mL in 5% HNO_3

Mercury (Hg)

CLP Calibration Standard Set
CLP-CAL-1-SET **6 x 100 mL**

CLP-CAL-01	CLP-CAL-03	CLP-CAL-05
CLP-CAL-02	CLP-CAL-04	CLP-CAL-06

Verification Standards

Initial Calibration Verification
CLP-ICV-01-1 **100 mL**
CLP-ICV-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 22 comps.

Aluminum (Al)	200
Antimony (Sb)	60
Arsenic (As)	10
Barium (Ba)	200
Beryllium (Be)	5
Cadmium (Cd)	5
Calcium (Ca)	5000
Chromium (Cr)	10
Cobalt (Co)	50
Copper (Cu)	25
Iron (Fe)	100
Lead (Pb)	5
Magnesium (Mg)	5000
Manganese (Mn)	15
Nickel (Ni)	40
Potassium (K)	5000
Selenium (Se)	5
Silver (Ag)	10
Sodium (Na)	5000
Thallium (Tl)	10
Vanadium (V)	50
Zinc (Zn)	20

Initial Calibration Verification
CLP-ICV-01-R-1 **100 mL**
CLP-ICV-01-R-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 22 comps.

Aluminum (Al)	200
Antimony (Sb)	60
Arsenic (As)	10
Barium (Ba)	200
Beryllium (Be)	5
Cadmium (Cd)	5
Calcium (Ca)	500
Chromium (Cr)	10
Cobalt (Co)	50
Copper (Cu)	25
Iron (Fe)	100
Lead (Pb)	5
Magnesium (Mg)	500
Manganese (Mn)	15
Nickel (Ni)	40
Potassium (K)	500
Selenium (Se)	5
Silver (Ag)	10
Sodium (Na)	500
Thallium (Tl)	10
Vanadium (V)	50
Zinc (Zn)	20

Technical Note
CLP-ICV-01-R has Ca, Mg, K & Na at 1/10 the concentration of CLP-ICV-01. This improves plasma robustness and often results in superior recoveries.

Custom Formulations
Meet your specific needs.

Request a custom formulation on our website or contact our Inorganic Technical Service Department email: inotech@accustandard.com

ICP
Contract Laboratory Program (CLP)

Interference Check and Alternate Analyte Standards

The common interferents checked for CLP requirements and their associated analytes are listed in our primary interferent analyte solutions. Occasionally, additional interferents may cause other analytical problems according to CLP SOW ILM03.0. These additional six elements are available with their respective analytes in the alternate interferent/analyte solutions.

Primary Analytes

CLP-PAN-01-1 **100 mL**
CLP-PAN-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 12 comps.

Silver (Ag)	100
Barium (Ba)	50
Beryllium (Be)	50
Cadmium (Cd)	100
Cobalt (Co)	50
Chromium (Cr)	50
Copper (Cu)	50
Manganese (Mn)	50
Nickel (Ni)	100
Lead (Pb)	100
Vanadium (V)	50
Zinc (Zn)	100

Primary Interferents

CLP-PIN-01-1 **100 mL**
CLP-PIN-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

Aluminum (Al)	5000
Calcium (Ca)	5000
Iron (Fe)	2000
Magnesium (Mg)	5000

Alternate Interferents

CLP-PIN-02-1 **100 mL**
CLP-PIN-02-5 **500 mL**
1000 µg/mL each in 5% HNO_3 6 comps.

Chromium (Cr)	Nickel (Ni)
Copper (Cu)	Titanium (Ti)
Manganese (Mn)	Vanadium (V)

Interferent / Analyte Sets

CLP-IA-1-SET **4 x 100 mL**

CLP-PIN-01-1	CLP-PIN-02-1
CLP-PAN-01-1	CLP-PAN-02-1

CLP-IA-5-SET **4 x 500 mL**

CLP-PIN-01-5	CLP-PIN-02-5
CLP-PAN-01-5	CLP-PAN-02-5

Alternate Analytes

CLP-PAN-02-1 **100 mL**
CLP-PAN-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 12 comps.

Aluminum (Al)	100
Antimony (Sb)	100
Arsenic (As)	100
Boron (B)	100
Calcium (Ca)	10
Iron (Fe)	10
Magnesium (Mg)	10
Molybdenum (Mo)	100
Selenium (Se)	100
Silicon (Si)	10
Sodium (Na)	100
Thallium (Tl)	100

Detection Limit Standards

Contract Required Detection Limits (CRDL) Standard Solutions. We offer the flexibility of two convenient solutions:

CLP Detection Limits Standard #1

CLP-CRDL-01-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 15 comps.

Antimony (Sb)	120
Arsenic (As)	120
Beryllium (Be)	10
Cadmium (Cd)	10
Chromium (Cr)	20
Cobalt (Co)	100
Copper (Cu)	50
Lead (Pb)	120
Manganese (Mn)	30
Nickel (Ni)	80
Selenium (Se)	120
Silver (Ag)	20
Thallium (Tl)	120
Vanadium (V)	100
Zinc (Zn)	40

Contract Required Detection Limits (CRDL) Set

CLP-CRDL-1-SET **2 x 100 mL**

CLP-CRDL-01-1	CLP-CRDL-02-1

Technical Note

Standards are prepared to meet the requirements of CLP protocol; Arsenic (As), Lead (Pb), Selenium (Se) and Thallium (Tl) are at a concentration two times the instrument detection limit (IDL) while the remaining elements are at two times the CRDL.

CLP Detection Limits Standard #2

CLP-CRDL-02-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 15 comps.

Antimony (Sb)	120
Arsenic (As)	20
Beryllium (Be)	10
Cadmium (Cd)	10
Chromium (Cr)	20
Cobalt (Co)	100
Copper (Cu)	50
Lead (Pb)	6
Manganese (Mn)	30
Nickel (Ni)	80
Selenium (Se)	10
Silver (Ag)	20
Thallium (Tl)	20
Vanadium (V)	100
Zinc (Zn)	40

Technical Note

These standards are designed for ICPs equipped with ultrasonic nebulizers and offer the elements of interest at two times the CRDL level.

ICP
EPA Method 200.7

Method 200.7 (Revision 4.4, May 1994) Calibration Standards

Mixed Calibration Standard #1
M-200.7-01-1 **100 mL**
M-200.7-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 10 comps.

Antimony (Sb)	50	Calcium (Ca)	100
Arsenic (As)	100	Copper (Cu)	20
Barium (Ba)	10	Manganese (Mn)	20
Boron (B)	20	Selenium (Se)	50
Cadmium (Cd)	20	Silver (Ag)	5

Mixed Calibration Standard #2
M-200.7-02R-1 **100 mL**
M-200.7-02R-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 6 comps.

Lithium (Li)	50	Strontium (Sr)	10
Molybdenum (Mo)	100	Titanium (Ti)	100
Potassium (K)	200		
Sodium (Na)	100		

Mixed Calibration Standard #3
M-200.7-03R-1 **100 mL**
M-200.7-03R-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

Cerium (Ce)	20
Cobalt (Co)	20
Phosphorus (P)	100
Vanadium (V)	20

Mixed Calibration Stds. Sets
M-200.7-R-1-SET **5 x 100 mL**

M-200.7-01-1, M-200.7-02R-1, M-200.7-03R-1, M-200.7-04-1, M-200.7-05-1

M-200.7-5-R-5-SET **5 x 500 mL**

M-200.7-01-5, M-200.7-02R-5, M-200.7-03-5R, M-200.7-04-5, M-200.7-05-5

Mixed Calibration Standard #5
M-200.7-05-1 **100 mL**
M-200.7-05-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Beryllium (Be)	10
Iron (Fe)	100
Lead (Pb)	100
Magnesium (Mg)	100
Nickel (Ni)	20
Thallium (Tl)	50

Mixed Calibration Standard #4
M-200.7-04-1 **100 mL**
M-200.7-04-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 5 comps.

Aluminum (Al)	100
Chromium (Cr)	50
Silicon (Si) †	100
Tin (Sn)	40
Zinc (Zn)	50

† 214 µg/mL as SiO_2

Method 200.7 Instrument Performance Check Standards

Instrument Performance Check Std. #1
M-200.7-IPC-01-1 **100 mL**
M-200.7-IPC-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 26 comps.

Aluminum (Al)	20	Lithium (Li)	20
Arsenic (As)	20	Magnesium (Mg)	20
Barium (Ba)	20	Manganese (Mn)	20
Beryllium (Be)	20	Nickel (Ni)	20
Boron (B)	20	Phosphorus (P)	100
Cadmium (Cd)	20	Potassium (K)	100
Calcium (Ca)	20	Selenium (Se)	20
Cerium (Ce)	20	Silver (Ag)	2.5
Chromium (Cr)	20	Sodium (Na)	20
Cobalt (Co)	20	Strontium (Sr)	20
Copper (Cu)	20	Thallium (Tl)	20
Iron (Fe)	20	Vanadium (V)	20
Lead (Pb)	20	Zinc (Zn)	20

Instrument Performance Check Standard #2
M-200.7-IPC-02-1 **100 mL**
M-200.7-IPC-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 5 comps.

Antimony (Sb)	20
Molybdenum (Mo)	20
Silicon (Si) †	100
Tin (Sn)	20
Titanium (Ti)	20

† 214 µg/mL as SiO_2

Method 200.7 Performance Check, Fortifying Solution and Mercury Standard

Laboratory Performance Check Std.
Used in demonstrating the initial and continuing verification of the calibration curves by this method.
LPCS-01-1 **100 mL**
LPCS-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 29 comps.

Aluminum (Al)	20	Manganese (Mn)	20
Antimony (Sb)	20	Molybdenum (Mo)	20
Arsenic (As)	20	Nickel (Ni)	20
Barium (Ba)	20	Phosphorus (P)	100
Beryllium (Be)	20	Potassium (K)	100
Boron (B)	20	Selenium (Se)	20
Cadmium (Cd)	20	Silicon (Si) †	100
Calcium (Ca)	20	Silver (Ag)	5
Chromium (Cr)	20	Sodium (Na)	20
Cobalt (Co)	20	Strontium (Sr)	20
Copper (Cu)	20	Thallium (Tl)	20
Iron (Fe)	20	Tin (Sn)	20
Lead (Pb)	20	Vanadium (V)	20
Lithium (Li)	20	Zinc (Zn)	20
Magnesium (Mg)	20		

† 214 µg/mL as SiO_2

Laboratory Performance Check Std.
Same above with additonal Titanium @ 20 µg/mL
LPCS-01R1-1 **100 mL**
LPCS-01R1-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 30 comps.

Laboratory Fortifying Stock Solution
Use in preparing the laboratory fortified blank and the laboratory fortified sample matrix.
LFSS-01-1 **100 mL**
LFSS-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 25 comps.

Aluminum (Al)	25	Manganese (Mn)	25
Antimony (Sb)	25	Molybdenum (Mo)	10
Arsenic (As)	25	Nickel (Ni)	25
Barium (Ba)	25	Phosphorus (P)	50
Beryllium (Be)	5	Selenium (Se)	25
Boron (B)	25	Silicon (Si) †	25
Cadmium (Cd)	10	Silver (Ag)	2.5
Chromium (Cr)	25	Strontium (Sr)	25
Cobalt (Co)	10	Thallium (Tl)	25
Copper (Cu)	25	Tin (Sn)	10
Iron (Fe)	25	Vanadium (V)	10
Lead (Pb)	25	Zinc (Zn)	25
Lithium (Li)	25		

† 53.5 µg/mL as SiO_2

Mercury Standard
In separate solution due to incompatibility with other elements.
TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Mercury (Hg)

Technical Note

The analytes Ca, K, Mg, and Na are not included in the stock solution because their concentrations vary widely in environmental samples. You can use CLP-CAL-01-1 to calibrate for these elements.

Method 200.7 Fortifying Standards

Instrument Fortifying Standard

M-200.7-LFSS-01-1 **100 mL**
M-200.7-LFSS-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 26 comps.

Aluminum (Al)	20	Lithium (Li)	20
Arsenic (As)	20	Magnesium (Mg)	20
Barium (Ba)	20	Manganese (Mn)	20
Beryllium (Be)	20	Nickel (Ni)	20
Boron (B)	20	Phosphorus (P)	20
Cadmium (Cd)	20	Potassium (K)	500
Calcium (Ca)	20	Selenium (Se)	20
Cerium (Ce)	20	Silver (Ag)	7.5
Chromium (Cr)	20	Sodium (Na)	20
Cobalt (Co)	20	Strontium (Sr)	20
Copper (Cu)	20	Thallium (Tl)	20
Iron (Fe)	20	Vanadium (V)	20
Lead (Pb)	20	Zinc (Zn)	20

Instrument Fortifying Standard #2

M-200.7-LFSS-02-1 **100 mL**
M-200.7-LFSS-02-5 **500 mL**
20 µg/mL each in 5% HNO_3 tr. HF 5 comps.

Antimony (Sb)
Molybdenum (Mo)
Silicon (Si) †
Tin (Sn)
Titanium (Ti)

† 42.78 µg/mL as SiO_2

Method 200.7 Spiking Standards

Spiking Standard #1R

M-200.7-SP-01-R **50 mL**
At stated conc. (µg/mL) in Water tr. HF 4 comps.

Boron (B)	400
Molybdenum (Mo)	200
Silicon (Si) †	2000
Phosphorus (P)	400

† 4278 µg/mL SiO_2

Spiking Standard #2R

M-200.7-SP-02-R **50 mL**
M-200.7-SP-02-R-1 **100 mL**
M-200.7-SP-02-R-5 **500 mL**
10,000 µg/mL each in in 2% HNO_3 4 comps.

Calcium (Ca)
Magnesium (Mg)
Potassium (K)
Sodium (Na)

Spiking Standard #3

M-200.7-SP-03 **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 12 comps.

Aluminum (Al)	2000
Barium (Ba)	2000
Beryllium (Be)	50
Chromium (Cr)	200
Cobalt (Co)	500
Copper (Cu)	250
Iron (Fe)	1000
Manganese (Mn)	500
Nickel (Ni)	500
Silver (Ag)	50
Vanadium (V)	500
Zinc (Zn)	500

Method 200.7 Spiking Set

M-200.7-SP-R-SET **5 x 50 mL**

M-200.7-SP-01-R
M-200.7-SP-02-R
M-200.7-SP-03
M-200.7-SP-04-R
M-200.7-SP-05-R

Spiking Standard #4R

M-200.7-SP-04-R **50 mL**
200 µg/mL in dilute HNO_3

Antimony (Sb)

Spiking Standard #5R

M-200.7-SP-05-R **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Arsenic (As)	200
Cadmium (Cd)	100
Lead (Pb)	200
Selenium (Se)	400
Thallium (Tl)	400

Method 200.7 Interference Check Standards

For use in testing and verifying the inter-element spectral correction process.

SIC Solution #1

Used to evaluate the spectral interference for the analytes: Al, Sb, Se, Sn, V

SICS-01-1 **100 mL**
SICS-01-5 **500 mL**
50 µg/mL in Water tr. NH_4OH

Molybdenum (Mo)

Check Solutions Sets

SIC-1-SET **3 x 100 mL**

SICS-01-1
SICS-02-1
SICS-03-1

SIC-5-SET **3 x 500 mL**

SICS-01-5
SICS-02-5
SICS-03-5

SIC Solution #2

Used to evaluate the spectral interference for the analytes: Sb, Pb, Zn, Mo, As, Be

SICS-02-1 **100 mL**
SICS-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 5 comps.

Chromium (Cr)	20
Cobalt (Co)	10
Copper (Cu)	40
Manganese (Mn)	20
Vanadium (V)	10

SIC Solution #3

Used to evaluate the spectral interference for the analytes: Sb, Zn, As, Ag, Cr, Mn, V

SICS-03-1 **100 mL**
SICS-03-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 3 comps.

Aluminum (Al)	30
Iron (Fe)	150
Nickel (Ni)	20

Method 6010B (Rev. 2, from SW-846) Calibration Standards

Mixed Calibration Standard #1

MCS-01-1 **100 mL**
MCS-01-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 6 comps.

Beryllium (Be)	50
Cadmium (Cd)	150
Lead (Pb)	500
Manganese (Mn)	100
Selenium (Se)	200
Zinc (Zn)	150

Mixed Calibration Standard #2

MCS-02-1 **100 mL**
MCS-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 5 comps.

Barium (Ba)	100
Cobalt (Co)	100
Copper (Cu)	100
Iron (Fe)	10,000
Vanadium (V)	100

Mixed Calibration Standard #3R

MCS-03R-1 **100 mL**
MCS-03R-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF 2 comps.

Arsenic (As)	500
Molybdenum (Mo)	100

Mixed Calibration Standard #4R

MCS-04R-1 **100 mL**
MCS-04R-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 8 comps.

Aluminum (Al)	200
Calcium (Ca)	1000
Chromium (Cr)	20
Lithium (Li)	100
Nickel (Ni)	20
Potassium (K)	400
Sodium (Na)	200
Strontium (Sr)	10

Mixed Calibration Standard #5R

MCS-05R-1 **100 mL**
MCS-05R-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

Antimony (Sb)	200
Magnesium (Mg)	1000
Silver (Ag)	50
Thallium (Tl)	200

Mixed Calibration Standard 6R

MCS-06R-1 **100 mL**
MCS-06R-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3, tr. HF 5 comps.

Phosphorus (P)	200
Tin (Sn)	200
Titanium (Ti)	100
Boron (B)	50
Silicon (Si) †	100

† 214 µg/mL as SiO_2

Complete Calibration Set
Method 6010B, Rev. 2 and 6010C, Rev. 3

MCS-1996-1-SET **7 x 100 mL**

MCS-01-1	MCS-04R-1	MCS-06R-1
MCS-02-1	MCS-05R-1	TCLP-02-1
MCS-03R-1		

MCS-1996-5-SET **7 x 500 mL**

MCS-01-5	MCS-04R-5	MCS-06R-5
MCS-02-5	MCS-05R-5	TCLP-02-5
MCS-03R-5		

Technical Note

Additional Analyte Calibration Standards
The use of this Standard Solution (MCS-06R), plus a Mercury Standard (TCLP-02), completes the analyte list for 1996 Rev. 2 & 2000 Rev. 3.

Mercury Standard

Mercury is available in a separate solution due to incompatibility with other elements.
TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Mercury (Hg)

Method 6010B Spiking Standards

Three convenient solutions that can be used for spiking samples pre- or post- digestion.

Spiking Standard #1

QCS-01-1 **100 mL**
QCS-01-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 23 comps.

Antimony (Sb)	Manganese (Mn)
Arsenic (As)	Molybdenum (Mo)
Beryllium (Be)	Nickel (Ni)
Cadmium (Cd)	Phosphorus (P)
Calcium (Ca)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cobalt (Co)	Thallium (Tl)
Copper (Cu)	Tin (Sn)
Iron (Fe)	Titanium (Ti)
Lead (Pb)	Vanadium (V)
Lithium (Li)	Zinc (Zn)
Magnesium (Mg)	

Spiking Standard #2

QCS-02-1 **100 mL**
QCS-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 7 comps.

Aluminum (Al)	100
Barium (Ba)	100
Boron (B)	100
Potassium (K)	1000
Silicon (Si) †	500
Silver (Ag)	50
Sodium (Na)	100

† 1070 µg/mL as SiO_2

QC Standard #2R

QCS-02-R1-1 **100 mL**
QCS-02-R1-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 7 comps.

Aluminum (Al)	Silicon (Si) †
Barium (Ba)	Silver (Ag)
Boron (B)	Sodium (Na)
Potassium (K)	

† 214 µg/mL as SiO_2

Mercury Standard

Mercury is available in a separate solution due to incompatibility with other elements.
TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Mercury (Hg)

Method 6010B (Rev. 2 from SW-846, Dec. 1996) Performance & Interference Check Standards

Laboratory Performance Check Standard

LPCS-01R-1 **100 mL**
LPCS-01R-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 30 comps.

Aluminum (Al)	20
Antimony (Sb)	20
Arsenic (As)	20
Barium (Ba)	20
Beryllium (Be)	20
Boron (B)	20
Cadmium (Cd)	20
Calcium (Ca)	20
Chromium (Cr)	20
Cobalt (Co)	20
Copper (Cu)	20
Iron (Fe)	20
Lead (Pb)	20
Lithium (Li)	20
Magnesium (Mg)	20
Manganese (Mn)	20
Molybdenum (Mo)	20
Nickel (Ni)	20
Phosphorus (P)	100
Potassium (K)	100
Selenium (Se)	20
Silicon (Si) †	100
Silver (Ag)	5
Sodium (Na)	20
Strontium (Sr)	20
Thallium (Tl)	20
Tin (Sn)	20
Titanium (Ti)	20
Vanadium (V)	20
Zinc (Zn)	20

† 214 µg/mL as SiO_2

Primary Interferents

CLP-PIN-01-1 **100 mL**
CLP-PIN-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

Aluminum (Al)	5000
Calcium (Ca)	5000
Iron (Fe)	2000
Magnesium (Mg)	5000

Alternate Interferents

CLP-PIN-02-1 **100 mL**
CLP-PIN-02-5 **500 mL**
1000 µg/mL each in 5% HNO_3 6 comps.

Chromium (Cr)	Nickel (Ni)
Copper (Cu)	Titanium (Ti)
Manganese (Mn)	Vanadium (V)

Set-up Solution

Nebulizer Adjustment Solution

ICP-69N-1 **100 mL**
1000 µg/mL in 2% HNO_3

Yttrium (Y)

USP 232 Elemental Impurities

USP 232 Elemental Impurities

Limits for the amounts of elemental impurities in drug products are specified by the United States Pharmacopeia (USP) and the International Council for Harmonisation (ICH). These limits are detailed in USP General Chapter 232 and ICH Guideline for Elemental Impurities Q3D. Standards based on oral permitted daily exposures along with an internal standard are provided, as well as high and low level multi-element calibration standards, which allow for quantitative analysis through custom applications. Additional custom standards are available.

USP 232 Oral Impurities Mix 1

USP-232-01-1 **100 mL**
At stated conc. (µg/mL) 4 comps.
2-5% HNO_3

Arsenic (As)	15
Cadmium (Cd)	5
Lead (Pb)	5
Mercury (Hg)	30

USP 232 Oral Impurities Mix 2

USP-232-02-1 **100 mL**
At stated conc. (µg/mL) 6 comps.
2-5% HNO_3

Cobalt (Co)	50
Nickel (Ni)	200
Selenium (Se)	150
Silver (Ag)	150
Thallium (Tl)	8
Vanadium (V)	100

USP 232 Oral Impurities Mix 3

USP-232-03-1 **100 mL**
100 µg/mL each in 10% HCl 7 comps.

Gold (Au)
Iridium (Ir)
Osmium (Os)
Palladium (Pd)
Platinum (Pt)
Rhodium (Rh)
Ruthenium (Ru)

USP 232 Oral Impurities Mix 4

USP-232-04-1 **100 mL**
At stated conc. (µg/mL) 7 comps
5% HNO_3 tr. HF

Antimony (Sb)	120
Barium (Ba)	140
Chromium (Cr)	1100
Copper (Cu)	300
Lithium (Li)	55
Molybdenum (Mo)	300
Tin (Sn)	600

USP 232 Low Level Calibration Standard A

USP-232-CAL-LOW-A-1 **100 mL**
10 µg/mL each in 5% HNO_3, tr HF 16 comps.

Antimony (Sb)	Lithium (Li)
Arsenic (As)	Molybdenum (Mo)
Barium (Ba)	Nickel (Ni)
Cadmium (Cd)	Selenium (Se)
Chromium (Cr)	Silver (Ag)
Cobalt (Co)	Tin (Sn)
Copper (Cu)	Thallium (Tl)
Lead (Pb)	Vanadium (V)

USP 232 Low Level Calibration Standard B

USP-232-CAL-LOW-B-1 **100 mL**
10 µg/mL each in 10% HCl 7 comps.

Gold (Au)	Platinum (Pt)
Iridium (Ir)	Rhodium (Rh)
Osmium (Os)	Ruthenium (Ru)
Palladium (Pd)	

USP 232 Low Level Calibration Standard C

USP-232-CAL-LOW-C-1 **100 mL**
10 µg/mL in 5% HNO_3

Mercury (Hg)

USP 232 High Level Calibration Standard A

USP-232-CAL-HIGH-A-1 **100 mL**
100 µg/mL each in 5% HNO_3, tr HF 16 comps.

Antimony (Sb)	Lithium (Li)
Arsenic (As)	Molybdenum (Mo)
Barium (Ba)	Nickel (Ni)
Cadmium (Cd)	Selenium (Se)
Chromium (Cr)	Silver (Ag)
Cobalt (Co)	Tin (Sn)
Copper (Cu)	Thallium (Tl)
Lead (Pb)	Vanadium (V)

USP 232 High Level Calibration Standard B

USP-232-CAL-HIGH-B-1 **100 mL**
100 µg/mL each in 10% HCl 7 comps.

Gold (Au)	Platinum (Pt)
Iridium (Ir)	Rhodium (Rh)
Osmium (Os)	Ruthenium (Ru)
Palladium (Pd)	

USP 232 High Level Calibration Standard C

USP-232-CAL-HIGH-C-1 **100 mL**
100 µg/mL in 5% HNO_3

Mercury (Hg)

USP 232 Internal Standard

USP-232-05-1 **100 mL**
At stated conc. (µg/mL) 6 comps.
2-5% HNO_3 tr. HCl tr. HF

Bismuth (Bi)	5
Germanium (Ge)	5
Indium (In)	5
Lutetium (Lu)	5
Scandium (Sc)	10
Tellurium (Te)	25

Cannabis and E-Cigarette Standards

Cannabis - Heavy Metals Analysis

Regulations for the testing of heavy metals in cannabis products differ based on state requirements and the route of administration. The standards below can be used for commonly set maximum limits or to provide flexibility to allow calibration over a wide range of concentrations.

Cannabis Metals 1

CP-MET-01-1 **100 mL**
At stated conc. (µg/mL) 4 comps
2-5% Nitric acid

Arsenic (As)	15
Cadmium (Cd)	5
Lead (Pb)	5
Mercury (Hg)	30

Cannabis Metals 2

CP-MET-02-1 **100 mL**
At stated conc. (µg/mL) 4 comps
2-5% Nitric acid

Arsenic (As)	20
Cadmium (Cd)	20
Lead (Pb)	50
Mercury (Hg)	10

Cannabis Metals Low & High Level Calibration Standards

CP-MET-CAL-LOW-1 **100 mL**
At stated conc. (µg/mL) 2-5% Nitric acid 4 comps

Arsenic (As)	10
Cadmium (Cd)	10
Lead (Pb)	10
Mercury (Hg)	10

CP-MET-CAL-HIGH-1 **100 mL**
At stated conc. (µg/mL) 2-5% Nitric acid 4 comps

Arsenic (As)	100
Cadmium (Cd)	100
Lead (Pb)	100
Mercury (Hg)	100

Electronic Cigarette Analysis

Trace Metals Standards

EC-MET-01-1 **100 mL**
10 µg/mL each in 2% Nitric Acid 4 comps.

Cadmium (Cd), Copper (Cu), Nickel (Ni), Chromium (Cr)

EC-MET-02-1 **100 mL**
10 µg/mL each in 2% Nitric Acid 5 comps.

Aluminum (Al), Lead (Pb), Manganese (Mn), Arsenic (As), Iron (Fe)

Testing of heavy metals is important because metallic impurities can be absorbed from the soil when the plant grows, or be introduced during preparation of the consumer product.

Element / Starting Material	Matrix	1,000 µg/mL Cat. No.	Unit
Aluminum (Al) $Al(NO_3)_3 \cdot 9H_2O$	2-5% Nitric acid	ICP-01N-1	100 mL
		ICP-01N-5	500 mL
Arsenic (As) As	2-5% Nitric acid	ICP-03N-1	100 mL
		ICP-03N-5	500 mL
Cadmium (Cd) Cd	2-5% Nitric acid	ICP-08N-1	100 mL
		ICP-08N-5	500 mL
Chromium (Cr) $Cr(NO_3)3 \cdot 9H_2O$	2-5% Nitric acid	ICP-13N-R-1	100 mL
		ICP-13N-R-5	500 mL
Iron (Fe) $Fe(NO_3)3 \cdot 9H_2O$	2-5% Nitric acid	ICP-27N-1	100 mL
		ICP-27N-5	500 mL
Lead (Pb) $Pb(NO_3)_2$	2-5% Nitric acid	ICP-29N-1	100 mL
		ICP-29N-5	500 mL
Mercury (Hg) Hg	10% Nitric acid	ICP-34N-1	100 mL
		ICP-34N-5	500 mL
Molybdenum (Mo) $(NH_4)_2MoO_4$	Water tr. NH_4OH	ICP-35W-1	100 mL
		ICP-35W-5	500 mL

Element / Starting Material	Matrix	1,000 µg/mL Cat. No.	Unit
Nickel (Ni) Ni	2-5% Nitric acid	ICP-37N-1	100 mL
		ICP-37N-5	500 mL
Potassium (K) KNO_3	2-5% Nitric acid	ICP-43N-1	100 mL
		ICP-43N-5	500 mL
Sodium (Na) $NaNO_3$	2-5% Nitric acid	ICP-54N-1	100 mL
		ICP-54N-5	500 mL
Thallium (Tl) $TlNO_3$	2-5% Nitric acid	ICP-60N-1	100 mL
		ICP-60N-5	500 mL
Thorium (Th) $Th(NO_3)4 \cdot 4H_2O$	2-5% Nitric acid	ICP-61N-1	100 mL
		ICP-61N-5	500 mL
Uranium (U) $UO_2(NO_3)2 \cdot 6H_2O$	2-5% Nitric acid	ICP-66N-R-1	100 mL
		ICP-66N-R-5	500 mL
Vanadium (V) V_2O_5	2-5% Nitric acid	ICP-67N-1	100 mL
		ICP-67N-5	500 mL

See the single element section for additional elements and standards for ICP-MS

ICP Alternate Source

The Alternate Source Line (ASL) formulations match products from instrument manufacturers. These calibration and testing standards have been formulated to be used for specific instrument setup and verification. Contact our Inorganic Technical Service Dept. for additional formulations not found on these pages or to cross reference part numbers.

AccuStandard is not affiliated with these companies and brands. The only purpose is to cross reference with our corresponding products.

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Cross Reference Part No. Index

Agilent

Brand	AccuStandard
5183-4681	AG-INT
5183-4682	AG-VER1
5183-4687	AG-SPIKE
5183-4688	AG-CAL
5188-6524	AG-TUN
5188-6525	AG-INTSTD
5188-6526	AG-INTFR-6020 ◊
5188-6527	AG-INTFR2-6020 ◊
5188-6564	AG-TUNSTOCK
5190-0465	AG-TUNSTOCK1
8500-6940	AG-MECAL2A
8500-6942	AG-MECAL4
8500-6944	AG-MECAL1
8500-6948	AG-MECAL3
190024400	VAR-TUN ◊
190064800	AG-INTFA ◊
190024900	AG-ICV7
190025000	AG-QCS27
190025100	AG-ANALTB
6610030000	AG-WAVECAL-10X
6610030100	AG-WAVECAL
6610030400	AG-INT2
6610030500	AG-CAL1
6610030600	AG-CAL2
6610030700	AG-CALMAJOR

Perkin Elmer

Brand	AccuStandard
N0582152	PE-UVWAVE ◊
N0691579	PE-MCS ◊
N0691580	PE-UV ◊
N8122014	PE-SETUP2 * ◊
N8122017	PE-CRDL3 * ◊
N8125030	PE-STAB ◊*
N8125031	PE-CRDL4 * ◊
N8125032	PE-SETUP1 ◊*
N8125034	PE-SENS * ◊
N8125040	PE-SMTUNE *
N8125041	PE-SMTUNE2 *
N9300200	PE-MCS1 ◊
N9300201	PE-MCS2 ◊
N9300202	PE-MCS3 ◊
N9300203	PE-MCS4 ◊
N9300204	PE-MCS5 ◊
N9300205	PE-ICS18
N9300208	PE-ICS5
N9300214	PE-WPAM1 ◊

Perkin Elmer (continued)

Brand	AccuStandard
N9300215	PE-WPAM3 ◊
N9300216	PE-SDWA1 ◊
N9300217	PE-SDWA2 ◊
N9300218	PE-CAL4
N9300219	PE-CAL5 ◊
N9300220	PE-CAL6 ◊
N9300221	PE-CAL7 ◊
N9300224	PE-CRDL1 * ◊
N9300225	PE-CRDL2 ◊
N9300226	PE-INTA ◊
N9300227	PE-ANAB ◊
N9300228	PE-ALTINTA ◊
N9300229	PE-ALTB ◊
N9300230	PE-SPIKE ◊
N9300231	PE-MECAL1
N9300232	PE-MECAL2
N9300233	PE-MECAL3
N9300234	PE-MECAL4
N9300235	PE-MECAL5
N9300280	PE-QC7
N9300281	PE-QC21
N9301720	PE-MECAL3
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N9303825	PE-VER1
N9303826	PE-VER2
N9303827	PE-INTFRA ◊
N9303828	PE-INTFR1 ◊
N9303829	PE-INTFRB ◊
N9303830	PE-INTFR2 ◊
N9303831	PE-INTFRC ◊
N9303832	PE-INT
N9303834	PE-MEINT ◊
N9303835	PE-MEM1 ◊
N9303836	PE-MEM2 ◊
N9303839	PE-SPIKE1 ◊
N9303840	PE-SPIKE2 ◊
N9303841	PE-SPIKE3 ◊
N9303843	PE-TUNSOL
N9307113	PE-MES1 ◊
N9307114	PE-MES2 ◊
N9307115	PE-MES3 ◊
N9307116	PE-MES4 ◊

HORIBA Jobin Yvon

Brand	AccuStandard
JYICP-MIXHM	JY-CALHM ◊
JYICP-MIXMAJ	JY-CAL
JYICP-MIX7HSI	JY-QC7
JYICP-MIX9	JY-CHK ◊
JYICP-MIX21	JY-QC21
JYICP-MIX23	JY-QC23
JYICP-QC1	JY-CHK1 ◊

Teledyne

Brand	AccuStandard
601-3110	TELE-CHK1 *
601-4101	TELE-CHK2 * ◊
601-4102	TELE-CHK3 * ◊
602-00065	TELE-CHK4 ◊
602-00067	TELE-CHK4 ◊
602-00068	TELE-CHK5 ◊
602-00070	TELE-CHK5 ◊
602-00071	TELE-CHK6 ◊
602-00073	TELE-CHK6 ◊
620-403	TELE-CHK7 ◊
602-00125	TELE-CHK8-0.1X * ◊

Merck

Brand	AccuStandard	
1.09032	MES-IC-05	see page 11
1.09036	MES-IC-06	see page 12
1.09410	MES-23 ◊	
1.09411	MES-24	
1.09480	MES-13 *	
1.09481	MES-14	
1.09482	MES-15 ◊	
1.09487	MES-16	
1.09490	MES-12 *	
1.09491	MES-11 * ◊	
1.09492	MES-08 *	
1.09493	MES-10 *	
1.09494	MES-09 *	
1.09495	MES-17	
1.09496	MES-19 * ◊	
1.09497	MES-20 * ◊	
1.09498	MES-21 ◊	
1.09499	MES-22 *	
1.09500	MES-18	
1.10322	MES-IC-07	see page 12
1.10580	MES-06 *	
1.10714	MES-05 * ◊	
1.11355	MES-04	
1.15474	MES-01 ◊	
1.11437	MES-AN-01	see page 11
1.11448	MES-AN-02	see page 11
1.15626	MES-03 ◊	
1.15708	MES-02 ◊	
1.11448	MES-AN-02	
1.70398	MES-IC-01	see page 11

* Similar formulation
◊ Custom Products

ICP Alternate Source
Agilent

AccuStandard equivalent of Agilent

ICP-OES Wavelength Calibration Solution

AG-WAVECAL-ASL-1 **100 mL**
AG-WAVECAL-ASL-5 **500 mL**
AG-WAVECAL-ASL-10X-1 **100 mL**
AG-WAVECAL-ASL-10X-5 **500 mL**
At stated conc. (µg/mL) in 1% HNO_3 15 comps.

	CAL	CAL-10X
Aluminum (Al)	5	50
Arsenic (As)	5	50
Barium (Ba)	5	50
Cadmium (Cd)	5	50
Cobalt (Co)	5	50
Chromium (Cr)	5	50
Copper (Cu)	5	50
Manganese (Mn)	5	50
Molybdenum (Mo)	5	50
Nickel (Ni)	5	50
Lead (Pb)	5	50
Selenium (Se)	5	50
Strontium (Sr)	5	50
Zinc (Zn)	5	50
Potassium (K)	50	500

ICP-MS Stock Tuning Solution

AG-TUNSTOCK-ASL-1 **100 mL**
AG-TUNSTOCK-ASL-5 **500 mL**
10 µg/mL in 2% HNO_3 5 comps.

Lithium (Li)
Yttrium (Y)
Cerium (Ce)
Thallium (Tl)
Cobalt (Co)

ICP-MS Stock Tuning Solution

AG-TUNSTOCK1-ASL-1 **100 mL**
AG-TUNSTOCK1-ASL-5 **500 mL**
10 µg/mL in 2% HNO_3 6 comps.

Lithium (Li)
Magnesium (Mg)
Yttrium (Y)
Cerium (Ce)
Thallium (Tl)
Cobalt (Co)

Internal Standard Mix for ICP-MS

AG-INTSTD-ASL-1 **100 mL**
AG-INTSTD-ASL-5 **500 mL**
100 µg/mL in 10% HNO_3, tr. HCl 8 comps.

Lithium-6 (Li-6)
Scandium (Sc)
Germanium (Ge)
Rhodium (Rh)
Indium (In)
Terbium (Tb)
Lutetium (Lu)
Bismuth (Bi)

QCSTD-27 Quality Control Std

AG-QCS27-ASL-1 **100 mL**
AG-QCS27-ASL-5 **500 mL**
100 µg/mL in 5% HNO_3, tr. HF 27 comps.

Aluminum (Al)
Antimony (Sb)
Arsenic (As)
Barium (Ba)
Beryllium (Be)
Boron (B)
Cadmium (Cd)
Calcium (Ca)
Chromium (Cr)
Cobalt (Co)
Copper (Cu)
Iron (Fe)
Lead (Pb)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Nickel (Ni)
Potassium (K)
Selenium (Se)
Silicon (Si)
Silver (Ag)
Strontium (Sr)
Sodium (Na)
Thallium (Tl)
Titanium (Ti)
Vanadium (V)
Zinc (Zn)

7500 Series PA Tuning 1

AG-TUN1-ASL-1 **100 mL**
AG-TUN1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 26 comps.

Zinc (Zn)	20	Barium (Ba)	5
Beryllium (Be)	20	Cobalt (Co)	5
Cadmium (Cd)	20	Strontium (Sr)	5
Arsenic (As)	20	Vanadium (V)	5
Nickel (Ni)	10	Chromium (Cr)	5
Lead (Pb)	10	Manganese (Mn)	5
Magnesium (Mg)	10	Lithium-6 (Li-6)	5
Thallium (Tl)	5	Scandium (Sc)	5
Sodium (Na)	5	Indium (In)	5
Aluminum (Al)	5	Lutetium (Lu)	5
Uranium (U)	5	Bismuth (Bi)	5
Copper (Cu)	5	Yttrium (Y)	2.5
Thorium (Th)	5	Ytterbium (Yb)	2.5

7500 Series PA Tuning 2

AG-TUN2-ASL-1 **100 mL**
AG-TUN2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 10% HCl, 1% HNO_3 tr. HF 8 comps.

Molybdenum (Mo)	10	Ruthenium (Ru)	10
Antimony (Sb)	10	Palladium (Pd)	10
Tin (Sn)	10	Titanium (Ti)	5
Germanium (Ge)	10	Iridium (Ir)	5

PA Tuning Solution Sets

AG-TUN-ASL-1-SET **2 x 100 mL**
AG-TUN1-ASL-1 AG-TUN2-ASL-1

AG-TUN-ASL-5-SET **2 x 500 mL**
AG-TUN1-ASL-5 AG-TUN2-ASL-5

ICV-7 Quality Control Standard

AG-ICV7-ASL-1 **100 mL**
AG-ICV7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

Calcium (Ca)	5000	Copper (Cu)	25
Magnesium (Mg)	5000	Zinc (Zn)	20
Potassium (K)	5000	Manganese (Mn)	15
Sodium (Na)	5000	Arsenic (As)	10
Aluminum (Al)	200	Chromium (Cr)	10
Barium (Ba)	200	Silver (Ag)	10
Iron (Fe)	100	Thallium (Tl)	10
Antimony (Sb)	60	Beryllium (Be)	5
Cobalt (Co)	50	Cadmium (Cd)	5
Vanadium (V)	50	Lead (Pb)	5
Nickel (Ni)	40	Selenium (Se)	5

Environmental Spike Mix

AG-SPIKE-ASL-R1-1 **100 mL**
AG-SPIKE-ASL-R1-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 24 comps.

Calcium (Ca)	1000	Chromium (Cr)	100
Iron (Fe)	1000	Copper (Cu)	100
Potassium (K)	1000	Manganese (Mn)	100
Magnesium (Mg)	1000	Molybdenum (Mo)	100
Sodium (Na)	1000	Nickel (Ni)	100
Silver (Ag)	100	Lead (Pb)	100
Aluminum (Al)	100	Antimony (Sb)	100
Arsenic (As)	100	Selenium (Se)	100
Barium (Ba)	100	Thallium (Tl)	100
Beryllium (Be)	100	Uranium (U)	100
Cadmium (Cd)	100	Vanadium (V)	100
Cobalt (Co)	100	Zinc (Zn)	100

Environmental Initial Calibration Verification

AG-VER1-ASL-R1-1 **100 mL**
AG-VER1-ASL-R1-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 26 comps.

Calcium (Ca)	1000	Chromium (Cr)	10
Iron (Fe)	1000	Copper (Cu)	10
Potassium (K)	1000	Manganese (Mn)	10
Magnesium (Mg)	1000	Molybdenum (Mo)	10
Sodium (Na)	1000	Nickel (Ni)	10
Strontium (Sr)	100	Lead (Pb)	10
Silver (Ag)	10	Antimony (Sb)	10
Aluminum (Al)	10	Selenium (Se)	10
Arsenic (As)	10	Thallium (Tl)	10
Barium (Ba)	10	Uranium (U)	10
Beryllium (Be)	10	Vanadium (V)	10
Cadmium (Cd)	10	Zinc (Zn)	10
Cobalt (Co)	10	Thorium (Th)	10

ANALT-B Quality Control Std

AG-ANALTB-ASL-1 **100 mL**
AG-ANALTB-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 12 comps.

Cadmium (Cd)	100	Beryllium (Be)	50
Nickel (Ni)	100	Cobalt (Co)	50
Lead (Pb)	100	Chromium (Cr)	50
Silver (Ag)	100	Copper (Cu)	50
Zinc (Zn)	100	Manganese (Mn)	50
Barium (Ba)	50	Vanadium (V)	50

ICP Alternate Source
Agilent / Teledyne

AccuStandard equivalent of Agilent

Environmental Calibration Std.
AG-CAL-ASL-1 **100 mL**
AG-CAL-ASL-5 **500 mL**
At stated conc. (µg/mL) in 10% HNO_3 25 comps.

Calcium (Ca)	1000	Copper (Cu)	10
Iron (Fe)	1000	Manganese (Mn)	10
Potassium (K)	1000	Molybdenum (Mo)	10
Magnesium (Mg)	1000	Nickel (Ni)	10
Sodium (Na)	1000	Lead (Pb)	10
Silver (Ag)	10	Antimony (Sb)	10
Aluminum (Al)	10	Selenium (Se)	10
Arsenic (As)	10	Thallium (Tl)	10
Barium (Ba)	10	Vanadium (V)	10
Beryllium (Be)	10	Zinc (Zn)	10
Cadmium (Cd)	10	Thorium (Th)	10
Cobalt (Co)	10	Uranium (U)	10
Chromium (Cr)	10		

Calibration Mix 1 AA & ICP-OES
AG-CAL1-ASL-1 **100 mL**
AG-CAL1-ASL-5 **500 mL**
100 µg/mL each in 2% HNO_3 tr.HF 4 comps.

Antimony (Sb)	Tin (Sn)
Molybdenum (Mo)	Thallium (Tl)

Calibration Mix 2 AA & ICP-OES
AG-CAL2-ASL-1 **100 mL**
AG-CAL2-ASL-5 **500 mL**
100 µg/mL each in 5% HNO_3 18 comps.

Silver (Ag)	Manganese (Mn)
Aluminum (Al)	Nickel (Ni)
Arsenic (As)	Lead (Pb)
Barium (Ba)	Selenium (Se)
Beryllium (Be)	Thallium (Tl)
Cadmium (Cd)	Thorium (Th)
Cobalt (Co)	Uranium (U)
Chromium (Cr)	Vanadium (V)
Copper (Cu)	Zinc (Zn)

Calibration Mix Majors For AA & ICP-OES
AG-CALMAJOR-ASL-1 **100 mL**
AG-CALMAJOR-ASL-5 **500 mL**
500 µg/mL each in 5% HNO_3 5 comps.

Calcium (Ca)	Magnesium (Mg)
Iron (Fe)	Sodium (Na)
Potassium (K)	

Internal Standard Mix
AG-INT-ASL-1 **100 mL**
AG-INT-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 7 comps.

Bismuth (Bi)	Scandium (Sc)
Germanium (Ge)	Terbium (Tb)
Indium (In)	Yttrium (Y)
Lithium-6 (Li-6)	

ICP Internal Standard
AG-INT2-ASL-1 **100 mL**
AG-INT2-ASL-5 **500 mL**
100 µg/mL each in 5% HNO_3 6 comps.

Lithium-6 (Li-6)	Indium (In)
Scandium (Sc)	Terbium (Tb)
Yttrium (Y)	Bismuth (Bi)

Multi-Element Calibration Std. 1
AG-MECAL1-ASL-1 **100 mL**
AG-MECAL1-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 17 comps.

Cerium (Ce)	Praseodymium (Pr)
Dysprosium (Dy)	Scandium (Sc)
Erbium (Er)	Samarium (Sm)
Europium (Eu)	Terbium (Tb)
Gadolinium (Gd)	Thorium (Th)
Holmium (Ho)	Thulium (Tm)
Lanthanum (La)	Yttrium (Y)
Lutetium (Lu)	Ytterbium (Yb)
Neodymium (Nd)	

Multi-Element Calibration Std. 2A
AG-MECAL2A-ASL-1 **100 mL**
AG-MECAL2A-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 27 comps.

Silver (Ag)	Lithium (Li)
Aluminum (Al)	Magnesium (Mg)
Arsenic (As)	Manganese (Mn)
Barium (Ba)	Sodium (Na)
Beryllium (Be)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Rubidium (Rb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cesium (Cs)	Thallium (Tl)
Copper (Cu)	Uranium (U)
Iron (Fe)	Vanadium (V)
Gallium (Ga)	Zinc (Zn)
Potassium (K)	

Multi-Element Calibration Std. 3
AG-MECAL3-ASL-R-1 **100 mL**
AG-MECAL3-ASL-R-5 **500 mL**
10 µg/mL each in 10% HCl, 1% HNO_3 10 comps.

Gold (Au)	Rhodium (Rh)
Hafnium (Hf)	Ruthenium (Ru)
Iridium (Ir)	Antimony (Sb)
Palladium (Pd)	Tin (Sn)
Platinum (Pt)	Tellurium (Te)

Multi-Element Calibration Std. 4
AG-MECAL4-ASL-R1-1 **100 mL**
AG-MECAL4-ASL-R1-5 **500 mL**
10 µg/mL each in Water, tr. HF 13 comps.

Boron (B)	Silicon (Si)
Germanium (Ge)	Tantalum (Ta)
Molybdenum (Mo)	Tin (Sn)
Niobium (Nb)	Titanium (Ti)
Phosphorus (P)	Tungsten (W)
Rhenium (Re)	Zirconium (Zr)
Sulfur (S)	

AccuStandard is not affiliated with these companies and brands. The only purpose is to cross reference with our corresponding products.

Teledyne

Check Mate 1
TELE-CHK1-ASL-1-SET **2 x 100 mL**
TELE-CHK1-ASL-5-SET **2 x 500 mL**

TELE-CHK1-ASL
At stated conc. (µg/mL) in 5% HCl, 1% HNO_3 tr. HF 24 comps.

Calcium (Ca)	100
Potassium (K)	100
Magnesium (Mg)	100
Sodium (Na)	100
Aluminum (Al)	10
Arsenic (As)	10
Boron (B)	10
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Cobalt (Co)	10
Chromium (Cr)	10
Copper (Cu)	10
Iron (Fe)	10
Manganese (Mn)	10
Molybdenum (Mo)	10
Nickel (Ni)	10
Lead (Pb)	10
Antimony (Sb)	10
Selenium (Se)	10
Silicon (Si)	10
Thallium (Tl)	10
Vanadium (V)	10
Zinc (Zn)	10

TELE-CHK1-AG-ASL
1000 µg/mL in 2% HNO_3

Silver (Ag)

Supplied separately for better product stability.

ICP Alternate Source
Perkin Elmer

AccuStandard equivalent of Perkin Elmer

Instrument Calibration Std. 1
PE-CAL1-ASL-1 **100 mL**
PE-CAL1-ASL-5 **500 mL**
20 µg/mL each in 2% HNO_3 tr. Tartaric acid 20 comps.

Silver (Ag)	Molybdenum (Mo)
Aluminum (Al)	Nickel (Ni)
Arsenic (As)	Lead (Pb)
Barium (Ba)	Antimony (Sb)
Beryllium (Be)	Selenium (Se)
Cadmium (Cd)	Thorium (Th)
Cobalt (Co)	Thallium (Tl)
Chromium (Cr)	Uranium (U)
Copper (Cu)	Vanadium (V)
Manganese (Mn)	Zinc (Zn)

Instrument Calibration Std. 2
PE-CAL2-ASL-1 **100 mL**
PE-CAL2-ASL-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF, tr. Tartaric acid 26 comps.

Silver (Ag)	Manganese (Mn)
Aluminum (Al)	Molybdenum (Mo)
Arsenic (As)	Sodium (Na)
Barium (Ba)	Nickel (Ni)
Beryllium (Be)	Lead (Pb)
Calcium (Ca)	Antimony (Sb)
Cadmium (Cd)	Selenium (Se)
Cobalt (Co)	Tin (Sn)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Thallium (Tl)
Potassium (K)	Vanadium (V)
Magnesium (Mg)	Zinc (Zn)

Instrument Calibration Std. 3
PE-CAL3-ASL-1 **100 mL**
PE-CAL3-ASL-5 **500 mL**
1000 µg/mL each in 5% HNO_3 5 comps.

Iron (Fe)	Sodium (Na)
Potassium (K)	Magnesium (Mg)
Calcium (Ca)	

Instrument Calibration Std. 1
PE-CAL4-ASL-1 **100 mL**
PE-CAL4-ASL-5 **500 mL**
5000 µg/mL each in 5% HNO_3 4 comps.

Calcium (Ca)	Magnesium (Mg)
Potassium (K)	Sodium (Na)

Custom Formulations
Meet your specific needs.

Request a custom formulation on our website or contact our Inorganic Technical Service Department email: inotech@accustandard.com

Instrument Check Standard 1
PE-CHK1-ASL-1 **100 mL**
PE-CHK1-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 tr. HF, tr. Tartaric acid 17 comps.

Silver (Ag)	Manganese (Mn)
Aluminum (Al)	Nickel (Ni)
Arsenic (As)	Lead (Pb)
Barium (Ba)	Antimony (Sb)
Beryllium (Be)	Selenium (Se)
Cadmium (Cd)	Thallium (Tl)
Cobalt (Co)	Vanadium (V)
Chromium (Cr)	Zinc (Zn)
Copper (Cu)	

Instrument Check Standard 3
PE-CHK3-ASL-1 **100 mL**
PE-CHK3-ASL-5 **500 mL**
200 µg/mL each in 2% HNO_3 5 comps.

Calcium (Ca)	Magnesium (Mg)
Iron (Fe)	Sodium (Na)
Potassium (K)	

Interference Check Standard 5
PE-ICS5-ASL-1 **100 mL**
PE-ICS5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Calcium (Ca)	6000
Iron (Fe)	5000
Magnesium (Mg)	3000
Aluminum (Al)	1200
Sodium (Na)	1000

Interference Check Standard 18
PE-ICS18-ASL-1-SET **2 x 100 mL**
PE-ICS18-ASL-5-SET **2 x 500 mL**

PE-ICS18-ASL
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Potassium (K)	20000
Arsenic (As)	1000
Lead (Pb)	1000
Thallium (Tl)	1000
Selenium (Se)	500
Silver (Ag)	300
Barium (Ba)	300
Cadmium (Cd)	300
Cobalt (Co)	300
Chromium (Cr)	300
Copper (Cu)	300
Nickel (Ni)	300
Vanadium (V)	300
Zinc (Zn)	300
Manganese (Mn)	200
Beryllium (Be)	100

PE-ICS18-HG-ASL
100 µg/mL in 5% HNO_3

Mercury (Hg)

Supplied separately for better product stability.

Internal Standard Mix
PE-INT-ASL-1 **100 mL**
PE-INT-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 7 comps.

Lithium-6 (Li-6)	Indium (In)
Scandium (Sc)	Terbium (Tb)
Germanium (Ge)	Bismuth (Bi)
Yttrium (Y)	

Multi-Element Calibration Std 1
PE-MECAL1-ASL-1 **100 mL**
PE-MECAL1-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 9 comps.

Beryllium (Be)	Magnesium (Mg)
Bismuth (Bi)	Nickel (Ni)
Cerium (Ce)	Lead (Pb)
Cobalt (Co)	Uranium (U)
Indium (In)	

Multi-Element Calibration Std 2
PE-MECAL2-ASL-1 **100 mL**
PE-MECAL2-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 17 comps.

Cerium (Ce)	Praseodymium (Pr)
Dysprosium (Dy)	Samarium (Sm)
Erbium (Er)	Scandium (Sc)
Europium (Eu)	Terbium (Tb)
Gadolinium (Gd)	Thorium (Th)
Holmium (Ho)	Thulium (Tm)
Lanthanum (La)	Ytterbium (Yb)
Lutetium (Lu)	Yttrium (Y)
Neodymium (Nd)	

Multi-Element Calibration Std 3
PE-MECAL3-ASL-1-SET **2 x 100 mL**
PE-MECAL3-ASL-5-SET **2 x 500 mL**

PE-MECAL3-ASL
10 µg/mL each in 5% HNO_3 29 comps.

Silver (Ag)	Potassium (K)
Aluminum (Al)	Lithium (Li)
Arsenic (As)	Magnesium (Mg)
Barium (Ba)	Manganese (Mn)
Beryllium (Be)	Sodium (Na)
Bismuth (Bi)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Rubidium (Rb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cesium (Cs)	Thallium (Tl)
Copper (Cu)	Uranium (U)
Iron (Fe)	Vanadium (V)
Gallium (Ga)	Zinc (Zn)
Indium (In)	

PE-MECAL3-HG-ASL
10 µg/mL in 5% HNO_3

Mercury (Hg)

Supplied separately for better product stability.

Multi-Element Calibration Std 4
PE-MECAL4-ASL-R1-1 **100 mL**
PE-MECAL4-ASL-R1-5 **500 mL**
10 µg/mL each in 10% HCl, 1% HNO_3 10 comps.

Gold (Au)	Rhodium (Rh)
Hafnium (Hf)	Ruthenium (Ru)
Iridium (Ir)	Antimony (Sb)
Palladium (Pd)	Tin (Sn)
Platinum (Pt)	Tellurium (Te)

Multi-Element Calibration Std 5
PE-MECAL5-ASL-1 **100 mL**
PE-MECAL5-ASL-5 **500 mL**
10 µg/mL each in Water, tr. HF 12 comps.

Boron (B)	Sulfur (S)
Germanium (Ge)	Silicon (Si)
Molybdenum (Mo)	Tantalum (Ta)
Niobium (Nb)	Titanium (Ti)
Phosphorus (P)	Tungsten (W)
Rhenium (Re)	Zirconium (Zr)

ICP Alternate Source
Perkin Elmer / Horiba/Jobin Yvon

AccuStandard equivalent of Perkin Elmer

QC Standard 7 Elements
PE-QC7-ASL-1 **100 mL**
PE-QC7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 7 comps.

Potassium (K)	1000
Silicon (Si)	500
Aluminum (Al)	100
Boron (B)	100
Barium (Ba)	100
Sodium (Na)	100
Silver (Ag)	50

QC Standard 21 Elements
PE-QC21-ASL-1 **100 mL**
PE-QC21-ASL-5 **500 mL**
100 µg/mL each in 5% HNO_3, tr. HF, tr. Tartaric acid 21 comps.

Arsenic (As)	Molybdenum (Mo)
Beryllium (Be)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Antimony (Sb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Thallium (Tl)
Lithium (Li)	Vanadium (V)
Magnesium (Mg)	Zinc (Zn)
Manganese (Mn)	

SmartTune Solution for ELAN/DRC-e
PE-SMTUNE-ASL-1 **100 mL**
PE-SMTUNE-ASL-5 **500 mL**
1 µg/mL each in 2% HNO_3 tr. HCl 9 comps.

Barium (Ba)	Lead (Pb)
Beryllium (Be)	Magnesium (Mg)
Cerium (Ce)	Rhodium (Rh)
Cobalt (Co)	Uranium (U)
Indium (In)	

Supplied as a 100X concentrate for better stability.

SmartTune Solution for DRC/ DRC^{Plus}/DRC II
PE-SMTUNE2-ASL-1 **100 mL**
PE-SMTUNE2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 0.5% HNO_3 10 comps.

Barium (Ba)	10
Beryllium (Be)	1
Cerium (Ce)	1
Cobalt (Co)	1
Indium (In)	1
Iron (Fe)	1
Lead (Pb)	1
Magnesium (Mg)	1
Thorium (Th)	1
Uranium (U)	1

Supplied as a 1000X concentrate for better stability.

Tuning Solution I
PE-TUNSOL-ASL-1 **100 mL**
PE-TUNSOL-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3, tr. HCl 12 comps.

Barium (Ba)	Magnesium (Mg)
Beryllium (Be)	Lead (Pb)
Cerium (Ce)	Rhodium (Rh)
Cobalt (Co)	Thallium (Tl)
Indium (In)	Uranium (U)
Lithium (Li)	Yttrium (Y)

VIS Wavecal Solution
PE-VISWAVE-ASL-1 **100 mL**
PE-VISWAVE-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 8 comps.

Potassium (K)	50
Lanthanum (La)	10
Lithium (Li)	10
Manganese (Mn)	10
Sodium (Na)	10
Strontium (Sr)	10
Barium (Ba)	1
Calcium (Ca)	1

Initial Calibration Verification Standard 1
PE-VER1-ASL-1 **100 mL**
PE-VER1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. Tartaric acid 26 comps.

Iron (Fe)	1000
Potassium (K)	1000
Calcium (Ca)	1000
Sodium (Na)	1000
Magnesium (Mg)	1000
Strontium (Sr)	1000
Silver (Ag)	10
Aluminum (Al)	10
Arsenic (As)	10
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Cobalt (Co)	10
Chromium (Cr)	10
Copper (Cu)	10
Manganese (Mn)	10
Molybdenum (Mo)	10
Nickel (Ni)	10
Lead (Pb)	10
Antimony (Sb)	10
Selenium (Se)	10
Thallium (Tl)	10
Vanadium (V)	10
Zinc (Zn)	10
Thorium (Th)	10
Uranium (U)	10

Initial Calibration Verification Standard 2
PE-VER2-ASL-R1-1 **100 mL**
PE-VER2-ASL-R1-5 **500 mL**
10 µg/mL each in 2% HNO_3 tr. HF 2 comps.

Tin (Sn)	Titanium (Ti)

HORIBA Jobin Yvon

Instrument Calibration Standard
JY-CAL-ASL-1 **100 mL**
JY-CAL-ASL-5 **500 mL**
5000 µg/mL each in 2-5% HNO_3 4 comps.

Calcium (Ca)	Potassium (K)
Magnesium (Mg)	Sodium (Na)

Quality Control Standard 7
JY-QC7-ASL-1 **100 mL**
JY-QC7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 7 comps.

Potassium (K)	1000
Silicon (Si)	500
Aluminum (Al)	100
Boron (B)	100
Barium (Ba)	100
Sodium (Na)	100
Silver (Ag)	50

Quality Control Standard 21
JY-QC21-ASL-1 **100 mL**
JY-QC21-ASL-5 **500 mL**
100 µg/mL each in 2-5% HNO_3 tr. HF 21 comps.

Arsenic (As)	Molybdenum (Mo)
Beryllium (Be)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Antimony (Sb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Thallium (Tl)
Lithium (Li)	Vanadium (V)
Magnesium (Mg)	Zinc (Zn)
Manganese (Mn)	

Quality Control Standard 23
JY-QC23-ASL-1 **100 mL**
JY-QC23-ASL-5 **500 mL**
1000 µg/mL each in 2-5% HNO_3 23 comps.

Silver (Ag)	Indium (In)
Aluminum (Al)	Potassium (K)
Boron (B)	Lithium (Li)
Barium (Ba)	Magnesium (Mg)
Bismuth (Bi)	Manganese (Mn)
Cadmium (Cd)	Sodium (Na)
Calcium (Ca)	Nickel (Ni)
Chromium (Cr)	Lead (Pb)
Cobalt (Co)	Strontium (Sr)
Copper (Cu)	Thallium (Tl)
Iron (Fe)	Zinc (Zn)
Gallium (Ga)	

AccuStandard is not affiliated with these companies and brands. The only purpose is to cross reference with our corresponding products.

ICP Alternate Source
Merck

AccuStandard equivalent of Merck Multi-Element Standards

ICP Multi-Element Standard Solution IV

MES-04-1	**100 mL**
MES-04-5	**500 mL**

1000 µg/mL each in 1 mol/L HNO_3 23 comps.

Silver (Ag)	Indium (In)
Aluminum (Al)	Potassium (K)
Boron (B)	Lithium (Li)
Barium (Ba)	Magnesium (Mg)
Bismuth (Bi)	Manganese (Mn)
Calcium (Ca)	Sodium (Na)
Cadmium (Cd)	Nickel (Ni)
Cobalt (Co)	Lead (Pb)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Thallium (Tl)
Iron (Fe)	Zinc (Zn)
Gallium (Ga)	

ICP Multi-Element Standard Solution VI for MS

MES-06-1-SET	**100 mL**
MES-06-5-SET	**500 mL**

MES-06

At stated conc. (µg/mL) in 1 mol/L HNO_3 tr. HF 29 comps.

Silver (Ag)	10
Aluminum (Al)	10
Arsenic (As)	100
Boron (B)	100
Barium (Ba)	10
Beryllium (Be)	100
Bismuth (Bi)	10
Calcium (Ca)	1000
Cadmium (Cd)	10
Cobalt (Co)	10
Chromium (Cr)	10
Copper (Cu)	10
Iron (Fe)	100
Gallium (Ga)	10
Potassium (K)	10
Lithium (Li)	10
Magnesium (Mg)	10
Manganese (Mn)	10
Molybdenum (Mo)	10
Sodium (Na)	10
Nickel (Ni)	10
Lead (Pb)	10
Rubidium (Rb)	10
Selenium (Se)	100
Strontium (Sr)	10
Thallium (Tl)	10
Uranium (U)	10
Vanadium (V)	10
Zinc (Zn)	100

MES-06-TE

10 µg/mL in 10% HCl
Tellurium (Te)

Supplied separately for better stability

Merck Multi-Element Ion Chromatography Standards **pages 11-12**

Anion Mixes
MES-AN-01-1 and -5
MES-AN-02-1 and -5
MES-IC-01-1 and -5
MES-IC-05-1 and -5

Cation Mixes
MES-IC-06-1 and -5
MES-IC-07-1 and -5

ICP Multi-Element Standard Solution VIII

MES-08-1-SET	**2 x 100 mL**
MES-08-5-SET	**2 x 500 mL**

MES-08

100 µg/mL each in 1 mol/L HNO_3 23 comps.

Aluminum (Al)	Potassium (K)
Boron (B)	Lithium (Li)
Barium (Ba)	Magnesium (Mg)
Beryllium (Be)	Manganese (Mn)
Bismuth (Bi)	Sodium (Na)
Calcium (Ca)	Nickel (Ni)
Cadmium (Cd)	Lead (Pb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Thallium (Tl)
Iron (Fe)	Zinc (Zn)
Gallium (Ga)	

MES-08-TE

100 µg/mL in 10% HCl
Tellurium (Te)

Supplied separately for better stability

ICP Multi-Element Standard Solution IX

MES-09-1-SET	**2 x 100 mL**
MES-09-5-SET	**2 x 500 mL**

MES-09

100 µg/mL each in 1 mol/L HNO_3 8 comps.

Arsenic (As)	Chromium (Cr)
Beryllium (Be)	Nickel (Ni)
Lead (Pb)	Selenium (Se)
Cadmium (Cd)	Thallium (Tl)

MES-09-HG

100 µg/mL in 1 mol/L HNO_3
Mercury (Hg)

Supplied separately for better stability

ICP Multi-Element Standard Solution X

MES-10-1	**100 mL**
MES-10-5	**500 mL**

At stated conc. (µg/mL) in 1 mol/L HNO_3 23 comps.

Calcium (Ca)	3500
Magnesium (Mg)	1500
Sodium (Na)	800
Potassium (K)	300
Boron (B)	10
Iron (Fe)	10
Molybdenum (Mo)	10
Strontium (Sr)	10
Arsenic (As)	5
Barium (Ba)	5
Nickel (Ni)	5
Vanadium (V)	5
Zinc (Zn)	5
Manganese (Mn)	3
Cobalt (Co)	2.5
Lead (Pb)	2.5
Beryllium (Be)	2
Cadmium (Cd)	2
Chromium (Cr)	2
Copper (Cu)	2
Bismuth (Bi)	1
Selenium (Se)	1
Thallium (Tl)	1

Supplied at a 1:10 dilution for better long-term stability

ICP Multi-Element Standard Solution XII

MES-12-1-SET	**2 x 100 mL**
MES-12-5-SET	**2 x 500 mL**

MES-12-R1

1000 µg/mL each 5% HCl, tr. HNO_3, tr. HF 7 comps.

Arsenic (As)	Silicon (Si)
Molybdenum (Mo)	Tungsten (W)
Phosphorus (P)	Vanadium (V)
Sulfur (S)	

MES-12-ZR

1000 µg/mL in 5% HCl
Zirconium (Zr)

Supplied separately for better product stability

ICP Multi-Element Standard Solution XIII

MES-13-1-SET	**2 x 100 mL**
MES-13-5-SET	**2 x 500 mL**

MES-13

At stated conc.(µg/mL) in 5% HNO_3 14 comps.

Aluminum (Al)	500
Arsenic (As)	100
Beryllium (Be)	100
Cadmium (Cd)	25
Cobalt (Co)	100
Chromium (Cr)	100
Copper (Cu)	100
Iron (Fe)	100
Manganese (Mn)	100
Nickel (Ni)	100
Lead (Pb)	100
Selenium (Se)	25
Vanadium (V)	250
Zinc (Zn)	100

MES-13-HG

5 µg/mL each in 5% HNO_3
Mercury (Hg)

Supplied separately for better stability

ICP Multi-Element Standard Solution XVI

MES-16-1	**100 mL**
MES-16-5	**500 mL**

100 µg/mL each in 5% HNO_3 tr. HF 21 comps.

Antimony (Sb)	Magnesium (Mg)
Arsenic (As)	Manganese (Mn)
Beryllium (Be)	Molybdenum (Mo)
Cadmium (Cd)	Nickel (Ni)
Calcium (Ca)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cobalt (Co)	Thallium (Tl)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Vanadium (V)
Lead (Pb)	Zinc (Zn)
Lithium (Li)	

ICP Multi-Element Standard Solution XVII

MES-17-1	**100 mL**
MES-17-5	**500 mL**

100 µg/mL each in in 15% HCl tr. HNO_3 7 comps.

Hafnium (Hf)	Tantalum (Ta)
Iridium (Ir)	Titanium (Ti)
Antimony (Sb)	Zirconium (Zr)
Tin (Sn)	

ICP Multi-Element GF AAS Standard Solution XVIII

MES-18-R1-1	**100 mL**
MES-18-R1-5	**500 mL**

At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Silver (Ag)	10
Aluminum (Al)	100
Arsenic (As)	100
Barium (Ba)	50
Beryllium (Be)	5
Cadmium (Cd)	5
Cobalt (Co)	50
Chromium (Cr)	20
Copper (Cu)	50
Iron (Fe)	20
Manganese (Mn)	20
Nickel (Ni)	50
Lead (Pb)	100
Antimony (Sb)	100
Selenium (Se)	100
Thallium (Tl)	100

ICP Multi-Element Standard Solution XXI for MS

MES-21-1-SET	**2 x 100 mL**
MES-21-5-SET	**2 x 500 mL**

MES-21

10 µg/mL each in 5% HNO_3 29 comps.

Silver (Ag)	Potassium (K)
Aluminum (Al)	Lithium (Li)
Arsenic (As)	Magnesium (Mg)
Barium (Ba)	Manganese (Mn)
Beryllium (Be)	Sodium (Na)
Bismuth (Bi)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Rubidium (Rb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cesium (Cs)	Thallium (Tl)
Copper (Cu)	Vanadium (V)
Iron (Fe)	Uranium (U)
Gallium (Ga)	Zinc (Zn)
Indium (In)	

MES-21-HG

10 µg/mL in 5% HNO_3
Mercury (Hg)

Supplied separately for better product stability

ICP Multi-Element Standard Solution XXIV

MES-24-1	**100 mL**
MES-24-5	**500 mL**

At stated conc. (µg/mL) in 1% HNO_3 15 comps.

Aluminum (Al)	50
Arsenic (As)	50
Barium (Ba)	50
Cadmium (Cd)	50
Cobalt (Co)	50
Chromium (Cr)	50
Copper (Cu)	50
Potassium (K)	500
Manganese (Mn)	50
Molybdenum (Mo)	50
Nickel (Ni)	50
Lead (Pb)	50
Selenium (Se)	50
Strontium (Sr)	50
Zinc (Zn)	50

ICP-MS
Multi-Element Standards

■ **Ultra Pure Matrix** ■ **Traceability to NIST**

ICP-MS Standards are formulated to meet the needs of this very special instrument. As matrix effect is of utmost concern, each standard is formulated in specially purified 18 megohm de-ionized water and ultra pure acids. After both wet chemical and instrumental analysis, the standards are packaged in acid leached HDPE containers to provide required protection.

Calibration Standards

These five standards encompass the entire range of elements all at 10 ppm.

Calibration Standard 1

ICP-MS-CAL1-1 **100 mL**

10 µg/mL each in 5% HNO_3 17 comps.

Element	Most Abundant Isotope
Cerium (Ce)	140
Dysprosium (Dy)	164
Erbium (Er)	166
Europium (Eu)	153
Gadolinium (Gd)	158
Holmium (Ho)	165
Lanthanum (La)	139
Lutetium (Lu)	175
Neodymium (Nd)	143
Praseodymium (Pr)	141
Samarium (Sm)	152
Scandium (Sc)	45
Terbium (Tb)	159
Thorium (Th)	232
Thulium (Tm)	169
Ytterbium (Yb)	174
Yttrium (Y)	89

Calibration Standard 2

ICP-MS-CAL2-1 **100 mL**

10 µg/mL each in 5% HNO_3 29 comps.

Element	Most Abundant Isotope
Aluminum (Al)	27
Arsenic (As)	75
Barium (Ba)	138
Beryllium (Be)	9
Bismuth (Bi)	209
Cadmium (Cd)	114
Calcium (Ca)	40
Cesium (Cs)	133
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Gallium (Ga)	69
Indium (In)	115
Iron (Fe)	56
Lead (Pb)	208
Lithium (Li)	7
Magnesium (Mg)	24
Manganese (Mn)	55
Nickel (Ni)	58
Potassium (K)	39
Rubidium (Rb)	85
Selenium (Se)	80
Silver (Ag)	107
Sodium (Na)	23
Strontium (Sr)	88
Thallium (Tl)	205
Uranium (U)	238
Vanadium (V)	51
Zinc (Zn)	64

Calibration Standard 3

ICP-MS-CAL3-R-1 **100 mL**

10 µg/mL each in 10% HCl, 1% HNO_3 10 comps.

Element	Most Abundant Isotope
Antimony (Sb)	121
Gold (Au)	197
Hafnium (Hf)	180
Iridium (Ir)	193
Palladium (Pd)	106
Platinum (Pt)	195
Rhodium (Rh)	103
Ruthenium (Ru)	102
Tellurium (Te)	130
Tin (Sn)	120

Calibration Standard 4

ICP-MS-CAL4-1 **100 mL**

10 µg/mL each in Water tr. HF 12 comps.

Element	Most Abundant Isotope
Boron (B)	11
Germanium (Ge)	74
Molybdenum (Mo)	98
Niobium (Nb)	93
Phosphorus (P)	31
Rhenium (Re)	187
Silicon (Si)	28
Sulfur (S)	32
Tantalum (Ta)	181
Titanium (Ti)	48
Tungsten (W)	184
Zirconium (Zr)	90

Calibration Standard 5

ICP-MS-CAL5-1 **100 mL**

10 µg/mL in 5% HNO_3

Element	Most Abundant Isotope
Mercury (Hg)	202

Calibration Standard Set

ICP-MS-CAL-R-1-SET **5 x 100 mL**

ICP-MS-CAL1-1
ICP-MS-CAL2-1
ICP-MS-CAL3-R-1
ICP-MS-CAL4-1
ICP-MS-CAL5-1

Matrix Blanks

Nitric Acid Blank

ICP-MS-BLN-1 **100 mL**
ICP-MS-BLN-5 **500 mL**

5% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

ICP-MS-BLH-1 **100 mL**
ICP-MS-BLH-5 **500 mL**

5% HCl in 18 Megohm ASTM Type I deionized Water

These blanks are prepared from the same water source and acids as your standards and therefore provide a consistent matrix. They are excellent as a blank, preparing a standard curve, or as a diluent for standards and samples.

Water Blank

ICP-MS-BLW-1 **100 mL**
ICP-MS-BLW-5 **500 mL**

18 Megohm ASTM Type I deionized Water

ICP-MS
Multi-Element Standards

Tuning Solutions

We offer two tuning solutions, both range from 7-238 mass units. Choose the one which best suits your needs.

ICP-MS-TUNSOL1-1 — **100 mL**
100 µg/mL each in 2% HNO_3 — 8 comps.

Element	Most Abundant Isotope
Barium (Ba)	138
Beryllium (Be)	9
Copper (Cu)	63
Indium (In)	115
Lithium (Li)	7
Magnesium (Mg)	24
Thallium (Tl)	205
Uranium (U)	238

ICP-MS-TUNSOL2-1 — **100 mL**
100 µg/mL each in 2% HNO_3 — 13 comps.

Element	Most Abundant Isotope
Barium (Ba)	138
Beryllium (Be)	9
Bismuth (Bi)	209
Cerium (Ce)	140
Copper (Cu)	63
Holmium (Ho)	165
Indium (In)	115
Lead (Pb)	208
Lithium (Li)	7
Magnesium (Mg)	24
Thallium (Tl)	205
Uranium (U)	238
Yttrium (Y)	89

Interference Check Standards

Solution A

ICP-MS-INTA-1 — **100 mL**
At stated conc. (µg/mL) in 1% HNO_3 — 12 comps.

Element	µg/mL	Most Abundant Isotope
Aluminum (Al)	1000	27
Carbon (C)	2000	12
Calcium (Ca)	3000	40
Chloride (Cl)	18000	35
Iron (Fe)	2500	56
Magnesium (Mg)	1000	24
Molybdenum (Mo)	20	98
Phosphorus (P)	1000	31
Potassium (K)	1000	39
Sodium (Na)	2500	23
Sulfur (S)	1000	32
Titanium (Ti)	20	48

Solution B

ICP-MS-INTB-1 — **100 mL**
At stated conc. (µg/mL) in 2% HNO_3 — 11 comps.

Element	µg/mL	Most Abundant Isotope
Arsenic (As)	10	75
Cadmium (Cd)	10	114
Carbon (C)	20	12
Chromium (Cr)	20	52
Copper (Cu)	20	63
Manganese (Mn)	20	55
Nickel (Ni)	20	58
Selenium (Se)	10	80
Silver (Ag)	20	107
Vanadium (V)	20	51
Zinc (Zn)	10	64

Interference Check Standard Set

ICP-MS-INT-1-SET — **2 x 100 mL**

ICP-MS-INTA-1 ICP-MS-INTB-1

Memory Check Solutions

Memory Check Solution Sets

ICP-MS-MEMCHKA-R1-SET — **2 x 100 mL**

ICP-MS-MEMCHKA1-R1
ICP-MS-MEMCHKA2-R1

ICP-MS-MEMCHK-R1-SET — **3 x 100 mL**

ICP-MS-MEMCHKA1-R1
ICP-MS-MEMCHKA2-R1
ICP-MS-MEMCHKB-R1

Solution A

ICP-MS-MEMCHKA1-R1 — **100 mL**
At stated conc. (µg/mL) in 2% HNO_3 — 24 comps.

Element	µg/mL	Most Abundant Isotope
Aluminum (Al)	1000	27
Antimony (Sb)	20	121
Arsenic (As)	20	75
Barium (Ba)	20	138
Beryllium (Be)	20	9
Cadmium (Cd)	20	114
Calcium (Ca)	1000	40
Carbon (C)	2000	12
Chromium (Cr)	20	52
Cobalt (Co)	20	59
Copper (Cu)	20	63
Iron (Fe)	1000	56
Lead (Pb)	20	208
Magnesium (Mg)	1000	24
Molybdenum (Mo)	20	98
Potassium (K)	1000	39
Titanium (Ti)	20	48
Manganese (Mn)	20	55
Nickel (Ni)	20	58
Selenium (Se)	20	80
Sodium (Na)	1000	23
Thallium (Tl)	20	205
Vanadium (V)	20	51
Zinc (Zn)	20	64

ICP-MS-MEMCHKA2-R1 — **100 mL**
20 µg/mL In 2% HNO_3

Element	Most Abundant Isotope
Silver (Ag)	107

Solution B

ICP-MS-MEMCHKB-R1 — **100 mL**
At stated conc. (µg/mL) in Water — 3 comps.

Element	µg/mL	Most Abundant Isotope
Chloride (Cl)	7200	35
Phosphorus (P)	1000	31
Sulfur (S)	1000	32

Technical Note

These memory check solutions are not designed to be used as standards. The solutions should be mixed together right before aspiration. Precipitate will form over time - this is normal and will not affect the performance of the solution. The mixture is used only to determine the memory or "carry-over" that occurs after running a "concentrated" solution.

ICP-MS
Multi-Element Standards

Spiking Standards

Spiking Standard for Water
ICP-MS-SPIKE-W-1 — **100 mL**

At stated conc. (µg/mL) in 5% HNO_3 — 17 comps.

Element	µg/mL	Most Abundant Isotope
Antimony (Sb)	100	121
Arsenic (As)	50	75
Barium (Ba)	250	138
Beryllium (Be)	25	9
Cadmium (Cd)	25	114
Chromium (Cr)	100	52
Cobalt (Co)	100	59
Copper (Cu)	100	63
Iron (Fe)	500	56
Lead (Pb)	50	208
Manganese (Mn)	100	55
Nickel (Ni)	100	58
Selenium (Se)	25	80
Silver (Ag)	25	107
Thallium (Tl)	25	205
Vanadium (V)	100	51
Zinc (Zn)	250	64

Spiking Standard for Soil
ICP-MS-SPIKE-S-1 — **100 mL**

At stated conc. (µg/mL) in 5% HNO_3 — 15 comps.

Element	µg/mL	Most Abundant Isotope
Antimony (Sb)	100	121
Arsenic (As)	50	75
Barium (Ba)	250	138
Beryllium (Be)	25	9
Cadmium (Cd)	50	114
Chromium (Cr)	250	52
Cobalt (Co)	100	59
Copper (Cu)	250	63
Lead (Pb)	100	208
Nickel (Ni)	125	58
Selenium (Se)	25	80
Silver (Ag)	25	107
Thallium (Tl)	25	205
Vanadium (V)	150	51
Zinc (Zn)	250	90

Spiking Standard Set
ICP-MS-SPIKE-1-SET — **2 x 100 mL**

ICP-MS-SPIKE-W-1 ICP-MS-SPIKE-S-1

Quality Control Standards

Sample 1
ICP-MS-QC1-1 — **100 mL**

10 µg/mL each in 2% HNO_3 — 9 comps.

Element	Most Abundant Isotope
Beryllium (Be)	9
Bismuth (Bi)	209
Cerium (Ce)	140
Cobalt (Co)	59
Indium (In)	115
Lead (Pb)	208
Magnesium (Mg)	24
Nickel (Ni)	58
Uranium (U)	238

Sample 2
ICP-MS-QC2-1 — **100 mL**

10 µg/mL each in 5% HNO_3 — 25 comps

Element	Most Abundant Isotope
Aluminum (Al)	27
Antimony (Sb)	121
Arsenic (As)	75
Barium (Ba)	138
Beryllium (Be)	9
Cadmium (Cd)	114
Calcium (Ca)	40
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Iron (Fe)	56
Lead (Pb)	208
Magnesium (Mg)	24
Manganese (Mn)	55
Molybdenum (Mo)	98
Nickel (Ni)	56
Potassium (K)	39
Selenium (Se)	80
Silver (Ag)	107
Sodium (Na)	23
Thallium (Tl)	205
Thorium (Th)	232
Uranium (U)	238
Vanadium (V)	51
Zinc (Zn)	64

Sample 3
ICP-MS-QC3-1 — **100 mL**

10 µg/mL each in 5% HNO_3 tr. HF — 21 comps.

Element	Most Abundant Isotope
Antimony (Sb)	121
Arsenic (As)	75
Beryllium (Be)	9
Cadmium (Cd)	114
Calcium (Ca)	40
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Iron (Fe)	56
Lead (Pb)	208
Lithium (Li)	7
Magnesium (Mg)	24
Manganese (Mn)	55
Molybdenum (Mo)	98
Nickel (Ni)	58
Selenium (Se)	80
Strontium (Sr)	88
Thallium (Tl)	205
Titanium (Ti)	48
Vanadium (V)	51
Zinc (Zn)	64

Internal Standards

Single Internal Standards at 2 concentrations

		10 µg/mL		100 µg/mL	
Element	**Matrix**	**Cat. No.**	**Unit**	**Cat. No.**	**Unit**
Bismuth	2-5% HNO	ICP-MS-IS-BI-1	100 mL	ICP-MS-IS-BI-10X-1	100 mL
Holmium	2-5% HNO	ICP-MS-IS-HO-1	100 mL	ICP-MS-IS-HO-10X-1	100 mL
Indium	2-5% HNO_3	ICP-MS-IS-IN-1	100 mL	ICP-MS-IS-IN-10X-1	100 mL
Lutetium	2-5% HNO_3	ICP-MS-IS-LU-1	100 mL	ICP-MS-IS-LU-10X-1	100 mL
Lithium-6	2-5% HNO_3	ICP-MS-IS-LI6-1	100 mL	ICP-MS-IS-LI6-10X-1	100 mL
Rhodium	10% HCl	ICP-MS-IS-RH-1	100 mL	ICP-MS-IS-RH-10X-1	100 mL
Scandium	2-5% HNO_3	ICP-MS-IS-SC-1	100 mL	ICP-MS-IS-SC-10X-1	100 mL
Terbium	2-5% HNO_3	ICP-MS-IS-TB-1	100 mL	ICP-MS-IS-TB-10X-1	100 mL
Yttrium	2-5% HNO_3	ICP-MS-IS-Y-1	100 mL	ICP-MS-IS-Y-10X-1	100 mL

Internal Standard Mix
These internal standards have been chosen because they all have nearly 100% abundance of a single isotope and they are not commonly found in routine samples.

ICP-MS-IS-MIX1-1 — **100 mL**

10 µg/mL each in 2% HNO_3 — 7 comps.

Element	Most Abundant Isotope
Bismuth (Bi)	209
Holmium (Ho)	165
Indium (In)	115
Lithium-6 (Li-6)	6
Scandium (Sc)	45
Terbium (Tb)	159
Yttrium (Y)	89

Method 200.8 Determination of Trace Elements in Waters and Wastes by ICP-MS

Calibration Standards

Calibration Standard #1 (1991 Version)

ICP-MS-200.8-CAL1-1 — **100 mL**

10 µg/mL each in 5% HNO_3 tr. HF — 18 comps.

Element	Most Abundant Isotope
Aluminum (Al)	27
Antimony (Sb)	121
Arsenic (As)	75
Beryllium (Be)	9
Cadmium (Cd)	114
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Lead (Pb)	208
Manganese (Mn)	55
Molybdenum (Mo)	98
Nickel (Ni)	58
Selenium (Se)	80
Thallium (Tl)	205
Thorium (Th)	232
Uranium (U)	238
Vanadium (V)	51
Zinc (Zn)	64

Calibration Standard #2

ICP-MS-200.8-CAL2-1 — **100 mL**

10 µg/mL each in 2% HNO_3 — 2 comps.

Element	Most Abundant Isotope
Barium (Ba)	138
Silver (Ag)	67

Calibration Standard #1R (1994 Version)

ICP-MS-200.8-CAL1R-1 — **100 mL**

At stated conc. (µg/mL) in 2% HNO_3 tr. HF — 18 comps.

Element	µg/mL	Most Abundant Isotope
Aluminum (Al)	10	27
Antimony (Sb)	10	121
Arsenic (As)	10	75
Beryllium (Be)	10	9
Cadmium (Cd)	10	114
Chromium (Cr)	10	52
Cobalt (Co)	10	59
Copper (Cu)	10	63
Lead (Pb)	10	208
Manganese (Mn)	10	55
Molybdenum (Mo)	10	98
Nickel (Ni)	10	58
Selenium (Se)	50	80
Thallium (Tl)	10	205
Thorium (Th)	10	232
Uranium (U)	10	238
Vanadium (V)	10	51
Zinc (Zn)	10	64

Calibration Standard #3

ICP-MS-200.8-CAL3-1 — **100 mL**

1 component in 5% HNO_3

Element	µg/mL	Most Abundant Isotope
Mercury (Hg)	5	202

Internal Standards

Internal Standard #1

ICP-MS-200.8-IS-1 — **100 mL**

100 µg/mL each in 2% HNO_3 — 5 comps.

Element	Most Abundant Isotope
Scandium (Sc)	45
Yttrium (Y)	89
Indium (In)	115
Terbium (Tb)	159
Bismuth (Bi)	209

Internal Standard #2

ICP-MS-200.8-IS2-1 — **100 mL**

100 µg/mL in 2% HNO_3

Element	Most Abundant Isotope
Gold (Au)	197

See previous page for Single-Element Internal Standards

Tuning Standard

ICP-MS-200.8-TUN-1 — **100 mL**

10 µg/mL each in 2% HNO_3 — 5 comps.

Element	Most Abundant Isotope
Beryllium (Be)	75
Magnesium (Mg)	24
Cobalt (Co)	59
Indium (In)	115
Lead (Pb)	208

Method 6020 Calibration, Interference Check and Tuning Standards

Calibration Standard

ICP-MS-6020-CAL-R-1 — **100 mL**

10 µg/mL each in 2% HNO_3 — 22 comps.

Element	Most Abundant Isotope
Aluminum (Al)	27
Antimony (Sb)	121
Arsenic (As)	75
Barium (Ba)	138
Beryllium (Be)	9
Cadmium (Cd)	114
Calcium (Ca)	40
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Iron (Fe)	56
Lead (Pb)	208
Magnesium (Mg)	24
Manganese (Mn)	55
Nickel (Ni)	58
Potassium (K)	39
Selenium (Se)	80
Silver (Ag)	107
Sodium (Na)	23
Thallium (Tl)	205
Vanadium (V)	51
Zinc (Zn)	64

Interference Check Standard #1

ICP-MS-6020-INT1-1 — **100 mL**

At stated conc. (µg/mL) in 2% HNO_3 — 12 comps.

Element	µg/mL	Most Abundant Isotope
Aluminum (Al)	1000	27
Chloride (Cl)	10000	35
Calcium (Ca)	1000	40
Carbon (C)	2000	12
Iron (Fe)	1000	56
Magnesium (Mg)	1000	24
Molybdenum (Mo)	20	98
Phosphorus (P)	1000	31
Potassium (K)	1000	39
Sodium (Na)	1000	23
Sulfur (S)	1000	32
Titanium (Ti)	20	48

Interference Check Standard #2

ICP-MS-6020-INT2-1 — **100 mL**

2 µg/mL each in 5% HNO_3 tr. HF — 9 comps.

Element	Most Abundant Isotope
Arsenic (As)	75
Cadmium (Cd)	114
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Manganese (Mn)	55
Nickel (Ni)	58
Silver (Ag)	107
Zinc (Zn)	64

Tuning Standard

ICP-MS-6020-TUN-1 — **100 mL**

10 µg/mL each in 2% HNO_3 — 4 comps.

Element	Most Abundant Isotope
Cobalt (Co)	59
Indium (In)	115
Lithium (Li)	7
Thallium (Tl)	205

Inorganic ASTM Methods

ASTM D3230 Determination of Salts in Crude Oil

Mixed Salt Solution

D-3230-89-1 **100 mL**
D-3230-89-5 **500 mL**
At stated conc. (µg/mL) in Alcohol Solution (1-butanol : MeOH) (ratio 63:37) 3 comps.

Calcium chloride	10	Sodium chloride	70
Magnesium chloride	20		

ASTM D3237 Lead in Gasoline by AA Spectroscopy

Lead Standard Calibration Curve

D-3237-CAL-SET **4 x 100 mL**
Set includes the following Catalog Numbers:

Description	Cat. No.	Unit
Blank 1% Aliquot 336/MIBK	D-3237-01	100 mL
0.02 g Pb / gal (5.3 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-02	100 mL
0.05 g Pb / gal (13.2 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-03	100 mL
0.10 g Pb / gal (26.4 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-04	100 mL

Technical Note

D3237 Meets EPA guidelines for RFG Analysis

ASTM D3605 Trace Metals in Gas Turbine Fuels by AA & Flame Emission Spectroscopy

Trace Metals Standard

D-3605-91-R1-1 **1 x 100 mL**
250 µg/mL each in 75 cSt Hydrocarbon oil 4 comps.

Sodium (Na)	Calcium (Ca)
Lead (Pb)	Vanadium (V)

ASTM D3831 Manganese in Gasoline by AA Spectroscopy

Manganese Stock Solution

D-3831-1 **1 x 100 mL**
1.0 g Mn / gal (264.2 mg Mn / L) in Methyl isobutyl ketone

D-3831-R1-1 **1 x 100 mL**
400 mg/L in Methyl isobutyl ketone

Manganese

ASTM D5184 Aluminum and Silicon in Fuel Oils by Ashing, Fusion, ICP-AES Spectrometry & AA Spectrometry

Tartaric Acid / Hydrochloric Acid Solution

D-5184-91-TA-5 **1 x 500 mL**
Tartaric acid @ 0.5% w/v in 4% HCl

Aluminum Standard Solution

D-5184-91-AL-1 **1 x 100 mL**
D-5184-91-AL-5 **1 x 500 mL**
Aluminum @ 1000 µg/mL in 5 % HCl

Silicon Standard Solution

D-5184-91-SI-1 **1 x 100 mL**
D-5184-91-SI-5 **1 x 500 mL**
Silicon @ 1000 µg/mL in water tr. NaOH tr. HF

ASTM D8083 Nitrogen in Water

Total Nitrogen Stock Calibration Standard

D-8083-TN **100 mL**
Nitrogen @ 1000 µg/mL

Total Nitrogen Stock Laboratory Control Standard

D-8083-LCS **100 mL**
Nitrogen @ 1000 µg/mL

Stock TON Test Solution

D-8083-TON **100 mL**
Nitrogen @ 1000 µg/mL

ASTM D8083 Nitrogen Calibration Set

D-8083-SET **3 x 100 mL**
D-8083-TN, D-8083-LCS, D-8083-TON

Organometallic Standards

Table of Contents

Custom Formulations

Meet your specific needs.

Request a custom formulation on our website or contact our Inorganic Technical Service Department email: inotech@accustandard.com

Organometallic standards do not generally require a hazardous shipping fee.

Organometallic Standards
AA, ICP, DCP & XRF Analysis

These Standards were formulated for the analysis of metals in oils and other organic matrices. These Standards and curves provide a convenient way to analyze for metals (wear metals, additives and contaminants) in lubricating oils, gasolines, residual oils, crude oils, turbine fuels and environmental samples. Organometallic Standards listed on this page may contain sulfur which can be introduced by possible sulfonate starting materials used to formulate the actual organometallic standard.

- Single & Multi Element Standards
- Prepared Calibration Curves
- Formulated from Ultra High Purity Organometallic starting materials & matrices
- Certificate of Analysis

Single Element Organometallic

	1,000 µg/g in 75 cSt base oil		5,000 µg/g in 75 cSt base oil	
Element	**Cat. No.**	**Unit**	**Cat. No.**	**Unit**
Aluminum (Al)	WM-75CST-01	50 grams	WM-75CST-01-5X	50 grams
Antimony (Sb)	WM-75CST-02	50 grams	WM-75CST-02-5X	50 grams
Arsenic (As)	WM-75CST-03	50 grams	----------	----
Barium (Ba)	WM-75CST-04	50 grams	WM-75CST-04-5X	50 grams
Beryllium (Be)	WM-75CST-05	50 grams	----------	----
Bismuth (Bi)	WM-75CST-06	50 grams	----------	----
Boron (B)	WM-75CST-07	50 grams	WM-75CST-07-5X	50 grams
Cadmium (Cd)	WM-75CST-08	50 grams	WM-75CST-08-5X	50 grams
Calcium (Ca)	WM-75CST-09	50 grams	WM-75CST-09-5X	50 grams
Cerium (Ce)	WM-75CST-11	50 grams	WM-75CST-11-5X	50 grams
Chromium (Cr)	WM-75CST-13	50 grams	WM-75CST-13-5X	50 grams
Cobalt (Co)	WM-75CST-14	50 grams	WM-75CST-14-5X	50 grams
Copper (Cu)	WM-75CST-15	50 grams	WM-75CST-15-5X	50 grams
Indium (In)	WM-75CST-25	50 grams	WM-75CST-25-5X	50 grams
Iron (Fe)	WM-75CST-27	50 grams	WM-75CST-27-5X	50 grams
Lanthanum (La)	----------	----	WM-75CST-28-5X	50 grams
Lead (Pb)	WM-75CST-29	50 grams	WM-75CST-29-5X	50 grams
Lithium (Li)	WM-75CST-30	50 grams	WM-75CST-30-5X	50 grams
Magnesium (Mg)	WM-75CST-32	50 grams	WM-75CST-32-5X	50 grams
Manganese (Mn)	WM-75CST-33	50 grams	WM-75CST-33-5X	50 grams
Mercury (Hg)	WM-75CST-34	50 grams	----------	----
Molybdenum (Mo)	WM-75CST-35	50 grams	WM-75CST-35-5X	50 grams
Nickel (Ni)	WM-75CST-37	50 grams	WM-75CST-37-5X	50 grams
Phosphorus (P)	WM-75CST-41	50 grams	WM-75CST-41-5X	50 grams
Potassium (K)	WM-75CST-43	50 grams	WM-75CST-43-5X	50 grams
Scandium (Sc)	WM-75CST-50	50 grams	----------	----
Selenium (Se)	WM-75CST-51	50 grams	----------	----
Silicon (Si)	WM-75CST-52	50 grams	WM-75CST-52-5X	50 grams
Silver (Ag)	WM-75CST-53	50 grams	WM-75CST-53-5X	50 grams
Sodium (Na)	WM-75CST-54	50 grams	WM-75CST-54-5X	50 grams
Strontium (Sr)	WM-75CST-55	50 grams	WM-75CST-55-5X	50 grams
Sulfur (S)	WM-75CST-56	50 grams	WM-75CST-56-5X	50 grams
Thallium (Tl)	WM-75CST-60	50 grams	----------	----
Tin (Sn)	WM-75CST-63	50 grams	WM-75CST-63-5X	50 grams
Titanium (Ti)	WM-75CST-64	50 grams	WM-75CST-64-5X	50 grams
Tungsten (W)	WM-75CST-65	50 grams	WM-75CST-65-5X	50 grams
Vanadium (V)	WM-75CST-67	50 grams	WM-75CST-67-5X	50 grams
Yttrium (Y)	WM-75CST-69	50 grams	WM-75CST-69-5X	50 grams
Zinc (Zn)	WM-75CST-70	50 grams	WM-75CST-70-5X	50 grams
Zirconium (Zn)	WM-75CST-71	50 grams	WM-75CST-71-5X	50 grams

See our Table of Contents for complete list of Organometallic standards containing < 1 ppm sulfur or phosphorus

Matrix Oil and Stabilizer

75 cSt Oil
MOSOL-75 — 500 mL

Stabilizer
WM-STAB — 1 x 50 grams

Technical Note
Used to improve the stability of Organo-metallic Standards when diluting into solvents such as Kerosene. Add 0.6% by weight.

Metals Additives

MA-900-100G — 100 grams
MA-900-200G — 200 grams
900 µg/g each in Base oil

MA-1000-100G — 100 grams
MA-1000-200G — 200 grams
1000 µg/g each in Base oil

MA-3000-100G — 100 grams
MA-3000-200G — 200 grams
3000 µg/g each in Base oil

MA-5000-100G — 100 grams
MA-5000-200G — 200 grams
5000 µg/g each in Base oil — 5 comps.

Barium (Ba)
Calcium (Ca)
Magnesium (Mg)
Phosphorus (P)
Zinc (Zn)

Organometallic Standards
AA, ICP, DCP & XRF Analysis

21 Wear Metal Multi-Element

100 gram Set	**WM-21-100G-SET**	**7 x 100 grams**
200 gram Set	**WM-21-200G-SET**	**7 x 200 grams**

21 Wear Metals in base oil at the stated concentration

Conc.	Cat. No.	Unit
10 µg/g	WM-21-1X-100G	100 grams
	WM-21-1X-200G	200 grams
30 µg/g	WM-21-3X-100G	100 grams
	WM-21-3X-200G	200 grams
50 µg/g	WM-21-5X-100G	100 grams
	WM-21-5X-200G	200 grams
100 µg/g	WM-21-10X-100G	100 grams
	WM-21-10X-200G	200 grams
300 µg/g	WM-21-30X-100G	100 grams
	WM-21-30X-200G	200 grams
500 µg/g	WM-21-50X-100G	100 grams
	WM-21-50X-200G	200 grams
900 µg/g	WM-21-90X-100G	100 grams
	WM-21-90X-200G	200 grams

Silver (Ag)
Aluminum (Al)
Boron (B)
Barium (Ba)
Calcium (Ca)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Iron (Fe)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Sodium (Na)
Nickel (Ni)
Phosphorus (P)
Lead (Pb)
Silicon (Si)
Tin (Sn)
Titanium (Ti)
Vanadium (V)
Zinc (Zn)

22 Wear Metal Multi-Element

100 gram Set	**WM-22-100G-SET**	**7 x 100 grams**
200 gram Set	**WM-22-200G-SET**	**7 x 200 grams**

21 Wear Metals plus Potassium (K) in base oil at the stated concentration

Conc.	Cat. No.	Unit
10 µg/g	WM-22-1X-100G	100 grams
	WM-22-1X-200G	200 grams
30 µg/g	WM-22-3X-100G	100 grams
	WM-22-3X-200G	200 grams
50 µg/g	WM-22-5X-100G	100 grams
	WM-22-5X-200G	200 grams
100 µg/g	WM-22-10X-100G	100 grams
	WM-22-10X-200G	200 grams
300 µg/g	WM-22-30X-100G	100 grams
	WM-22-30X-200G	200 grams
500 µg/g	WM-22-50X-100G	100 grams
	WM-22-50X-200G	200 grams
900 µg/g	WM-22-90X-100G	100 grams
	WM-22-90X-200G	200 grams

Silver (Ag)
Aluminum (Al)
Boron (B)
Barium (Ba)
Calcium (Ca)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Iron (Fe)
Potassium (K)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Sodium (Na)
Nickel (Ni)
Phosphorus (P)
Lead (Pb)
Silicon (Si)
Tin (Sn)
Titanium (Ti)
Vanadium (V)
Zinc (Zn)

23 Wear Metal Multi-Element

100 gram Set	**WM-23-100G-SET**	**7 x 100 grams**
200 gram Set	**WM-23-200G-SET**	**7 x 200 grams**

21 Wear Metals plus Potassium (K) and Antimony (Sb) in base oil at the stated concentration

Conc.	Cat. No.	Unit
10 µg/g	WM-23-1X-100G	100 grams
	WM-23-1X-200G	200 grams
30 µg/g	WM-23-3X-100G	100 grams
	WM-23-3X-200G	200 grams
50 µg/g	WM-23-5X-100G	100 grams
	WM-23-5X-200G	200 grams
100 µg/g	WM-23-10X-100G	100 grams
	WM-23-10X-200G	200 grams
300 µg/g	WM-23-30X-100G	100 grams
	WM-23-30X-200G	200 grams
500 µg/g	WM-23-50X-100G	100 grams
	WM-23-50X-200G	200 grams
900 µg/g	WM-23-90X-100G	100 grams
	WM-23-90X-200G	200 grams

Silver (Ag)
Aluminum (Al)
Boron (B)
Barium (Ba)
Calcium (Ca)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Iron (Fe)
Potassium (K)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Sodium (Na)
Nickel (Ni)
Phosphorus (P)
Lead (Pb)
Antimony (Sb)
Silicon (Si)
Tin (Sn)
Titanium (Ti)
Vanadium (V)
Zinc (Zn)

Organometallic Standards
Premium Sulfur-Free

Sulfur-Free Single Element Organometallic

- Stabilized
- Ready for Use

	1,000 µg/g		5,000 µg/g	
Element	**Cat. No.**	**Unit**	**Cat. No.**	**Unit**
Aluminum (Al)	WM-NMS-01	50 mL	WM-NMS-01-5X	50 mL
Antimony (Sb)	WM-NMS-02	50 mL	WM-NMS-02-5X	50 mL
Arsenic (As)	WM-NMS-03	50 mL	WM-NMS-03-5X	50 mL
Barium (Ba)	WM-NMS-04	50 mL	WM-NMS-04-5X	50 mL
Beryllium (Be)	WM-NMS-05	50 mL	WM-NMS-05-5X	50 mL
Boron (B)	WM-NMS-07	50 mL	WM-NMS-07-5X	50 mL
Cadmium (Cd)	WM-NMS-08	50 mL	WM-NMS-08-5X	50 mL
Calcium (Ca)	WM-NMS-09	50 mL	WM-NMS-09-5X	50 mL
Cerium (Ce)	WM-NMS-11	50 mL	WM-NMS-11-5X	50 mL
Chromium (Cr)	WM-NMS-13	50 mL	WM-NMS-13-5X	50 mL
Cobalt (Co)	WM-NMS-14	50 mL	WM-NMS-14-5X	50 mL
Copper (Cu)	WM-NMS-15	50 mL	WM-NMS-15-5X	50 mL
Gold (Au)	WM-NMS-22	50 mL	----------	----
Iron (Fe)	WM-NMS-27	50 mL	WM-NMS-27-5X	50 mL
Lead (Pb)	WM-NMS-29	50 mL	WM-NMS-29-5X	50 mL
Lithium (Li)	WM-NMS-30	50 mL	WM-NMS-30-5X	50 mL
Magnesium (Mg)	WM-NMS-32	50 mL	WM-NMS-32-5X	50 mL
Manganese (Mn)	WM-NMS-33	50 mL	WM-NMS-33-5X	50 mL
Mercury (Hg)	WM-NMS-34	50 mL	WM-NMS-34-5X	50 mL
Molybdenum (Mo)	WM-NMS-35	50 mL	WM-NMS-35-5X	50 mL
Palladium (Pd)	WM-NMS-40	50 mL	WM-NMS-40-5X	50 mL
Phosphorus (P)	WM-NMS-41	50 mL	WM-NMS-41-5X	50 mL
Platinum (Pt)	WM-NMS-42	50 mL	WM-NMS-42-5X	50 mL
Potassium (K)	WM-NMS-43	50 mL	WM-NMS-43-5X	50 mL
Selenium (Se)	WM-NMS-51	50 mL	WM-NMS-51-5X	50 mL
Silicon (Si)	WM-NMS-52	50 mL	WM-NMS-52-5X	50 mL
Silver (Ag)	WM-NMS-53	50 mL	WM-NMS-53-5X	50 mL
Sodium (Na)	WM-NMS-54	50 mL	WM-NMS-54-5X	50 mL
Strontium (Sr)	WM-NMS-55	50 mL	WM-NMS-55-5X	50 mL
Thallium (Tl)	WM-NMS-60	50 mL	WM-NMS-60-5X	50 mL
Tin (Sn)	WM-NMS-63	50 mL	WM-NMS-63-5X	50 mL
Titanium (Ti)	WM-NMS-64	50 mL	WM-NMS-64-5X	50 mL
Vanadium (V)	WM-NMS-67	50 mL	WM-NMS-67-5X	50 mL
Yttrium (Y)	WM-NMS-69	50 mL	WM-NMS-69-5X	50 mL
Zinc (Zn)	WM-NMS-70	50 mL	WM-NMS-70-5X	50 mL
Zirconium (Zr)	WM-NMS-71	50 mL	WM-NMS-71-5X	50 mL

Premium Sulfur-Free
Sulfur below detection limits for most elements
No Metallic Sulfonates

All elements are provided in mineral oil except for Mercury, Palladium and Platinum which are provided in xylene.

Technical Note

Sulfur below detection limits for most elements. Sulfur content otherwise noted on certificate. For use with X-ray fluorescence (XRF), plasma emission (ICP or DCP), rotating disk (RDE), or atomic absorption (AA) spectroscopy. May be blended together to prepare multi-element standards. Solutions are stabilized with proprietary chelation and stabilization solution and are ready for use.

Sulfur-Free 21 Wear Metal Multi-Element

Conc.	Cat. No.	Unit
10 µg/g	WM-21-NMS-1X-1	100 mL
30 µg/g	WM-21-NMS-3X-1	100 mL
50 µg/g	WM-21-NMS-5X-1	100 mL
100 µg/g	WM-21-NMS-10X-1	100 mL
300 µg/g	WM-21-NMS-30X-1	100 mL
500 µg/g	WM-21-NMS-50X-1	100 mL
900 µg/g	WM-21-NMS-90X-1	100 mL
100 mL Set	**WM-21-NMS-1-SET**	**7 x 100 mL**

21 Wear Metal in Mineral oil at the stated concentration.

Silver (Ag)	Copper (Cu)	Phosphorus (P)
Aluminum (Al)	Iron (Fe)	Lead (Pb)
Boron (B)	Magnesium (Mg)	Silicon (Si)
Barium (Ba)	Manganese (Mn)	Tin (Sn)
Calcium (Ca)	Molybdenum (Mo)	Titanium (Ti)
Cadmium (Cd)	Sodium (Na)	Vanadium (V)
Chromium (Cr)	Nickel (Ni)	Zinc (Zn)

Suitable for ASTM D4628, D4927, D4951, D5056, D5185, D6443, D6481

Technical Note

For analysis by XRF, AA, ICP or AE for applications for which sulfur interference is undesirable. Prepared with sulfur-free organometallics that do not contain metallic sulfonates. Solutions are stabilized with proprietary chelation and stabilization solution and are ready for use. Additional stabilizers may be required in some cases. For additional information contact Technical Service.

Recommended Internal Standard

Organometallic (Internal Std) Cobalt (Sulfur free)

WM-NMS-14	1000 µg/g	50 mL
WM-NMS-14-5X	5000 µg/g	50 mL

Sulfur and Metals in Oil

Test Method A - ICP with an Organic Solvent Specimen Solution

Sulfur and Metals in Mineral Oil

Designed for ASTM D5708

ASTM-P-0102-SET — 12 x 100 mL

Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	Unit
ASTM-P-0102-01	0.00	0.00	0.00	0.00	100 mL
ASTM-P-0102-02	0.50	300	10.0	500	100 mL
ASTM-P-0102-03	1.00	500	100	25.0	100 mL
ASTM-P-0102-04	0.00	100	80.0	250	100 mL
ASTM-P-0102-05	2.00	200	40.0	100	100 mL
ASTM-P-0102-06	2.50	400	5.00	400	100 mL
ASTM-P-0102-07	3.00	0.00	60.0	300	100 mL
ASTM-P-0102-08	3.50	500	0.00	200	100 mL
ASTM-P-0102-09	0.00	100	100	0.00	100 mL
ASTM-P-0102-10	4.50	300	50.0	250	100 mL
ASTM-P-0102-11	5.00	200	20.0	500	100 mL
ASTM-P-0102-12	5.50	50.0	100	50.0	100 mL

Sulfur and Metals in Residual Fuel Oil

Designed for ASTM D5708

ASTM-P-0103-SET — 12 x 100 mL

Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	Unit
ASTM-P-0103-01	0.00	0.00	0.00	0.00	100 mL
ASTM-P-0103-02	0.50	300	10.0	500	100 mL
ASTM-P-0103-03	1.00	500	100	25.0	100 mL
ASTM-P-0103-04	0.00	100	80.0	250	100 mL
ASTM-P-0103-05	2.00	200	40.0	100	100 mL
ASTM-P-0103-06	2.50	400	5.00	400	100 mL
ASTM-P-0103-07	3.00	0.00	60.0	300	100 mL
ASTM-P-0103-08	3.50	500	0.00	200	100 mL
ASTM-P-0103-09	0.00	100	100	0.00	100 mL
ASTM-P-0103-10	4.50	300	50.0	250	100 mL
ASTM-P-0103-11	5.00	200	20.0	500	100 mL
ASTM-P-0103-12	5.50	50	100	50.0	100 mL

Stock Multi-Element Standard in Mineral Oil

D-5863-95B-10X-1 — 100 mL

At stated conc. (µg/g) in 20 cst Mineral Oil

3 comps.

Sodium (Na)	50	Vanadium (V)	150
Nickel (Ni)	200		

Stock Multi-Element Standard in Mineral Oil

D-5863-00A-10X-1 — 100 mL

At stated conc. (µg/g) in 20 cst Mineral Oil

3 comps.

Nickel (Na)	100	Iron (Fe)	10
Vanadium (V)	500	Sodium (Na)	20

ISO/CD 14597 Vanadium and Nickel Standards with Manganese (Internal Standard)

Vanadium Standards - Low Range for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0104-SET — 9 x 100 mL

Cat. No.	Vanadium Conc. (Wt.%)	Unit
ASTM-P-0104-01	0.0005	100 mL
ASTM-P-0104-02	0.0025	100 mL
ASTM-P-0104-03	0.0050	100 mL
ASTM-P-0104-04	0.0075	100 mL
ASTM-P-0104-05	0.0100	100 mL
ASTM-P-0104-06	0.0125	100 mL
ASTM-P-0104-07	0.0150	100 mL
ASTM-P-0104-08	0.0175	100 mL
ASTM-P-0104-09	0.0200	100 mL

Vanadium Standards - High Range for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0105-SET — 7 x 100 mL

Cat. No.	Vanadium Conc. (Wt.%)	Unit
ASTM-P-0105-01	0.0000	100 mL
ASTM-P-0105-02	0.0300	100 mL
ASTM-P-0105-03	0.0400	100 mL
ASTM-P-0105-04	0.0500	100 mL
ASTM-P-0105-05	0.0600	100 mL
ASTM-P-0105-06	0.0800	100 mL
ASTM-P-0105-07	0.1000	100 mL

Internal Standard

ASTM-P-0107-5 — 500 mL

Manganese @ 0.05 Wt. % in Xylene-Mineral Oil

Nickel Standards for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0106-SET — 7 x 100 mL

Cat. No.	Nickel Conc. (Wt.%)	Unit
ASTM-P-0106-01	0.0000	100 mL
ASTM-P-0106-02	0.0005	100 mL
ASTM-P-0106-03	0.0010	100 mL
ASTM-P-0106-04	0.0025	100 mL
ASTM-P-0106-05	0.0050	100 mL
ASTM-P-0106-06	0.0075	100 mL
ASTM-P-0106-07	0.0100	100 mL

Standards of Interest

Concentrations for the sets on pages 44-47 are targets. Actual production lots may vary.

Lubricating Oil Standards

Elements in Lubricating Oil
ASTM-P-0108-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. / Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0108-01	0.600	0.005	0.175	0.060
ASTM-P-0108-02	0.500	0.200	0.050	0.080
ASTM-P-0108-03	0.400	0.150	0.300	0.180
ASTM-P-0108-04	0.260	0.250	0.150	0.120
ASTM-P-0108-05	0.005	0.005	0.450	0.070
ASTM-P-0108-06	0.400	0.025	0.350	0.100
ASTM-P-0108-07	0.300	0.060	0.250	0.120
ASTM-P-0108-08	0.200	0.100	0.450	0.100
ASTM-P-0108-09	0.060	0.080	0.300	0.130
ASTM-P-0108-10	0.060	0.050	0.200	0.050
ASTM-P-0108-11	0.050	0.120	0.100	0.075
ASTM-P-0108-12	0.025	0.150	0.200	0.130
ASTM-P-0108-13	0.005	0.200	0.400	0.150
ASTM-P-0108-14	0.170	0.250	0.550	0.110
ASTM-P-0108-15	0.100	0.100	0.200	0.200
ASTM-P-0108-16	0.010	0.010	0.600	0.250
ASTM-P-0108-17	0.000	0.000	0.000	0.000

Elements in Lubricating Oil
ASTM-P-0109-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. / Nominal Value	Ca (Wt.%)	Cl (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0109-01	0.600	0.100	0.005	0.175	0.060
ASTM-P-0109-02	0.500	0.000	0.200	0.050	0.080
ASTM-P-0109-03	0.400	0.010	0.150	0.300	0.180
ASTM-P-0109-04	0.260	0.500	0.250	0.150	0.120
ASTM-P-0109-05	0.005	1.000	0.005	0.450	0.070
ASTM-P-0109-06	0.400	0.400	0.025	0.350	0.100
ASTM-P-0109-07	0.300	0.100	0.060	0.250	0.120
ASTM-P-0109-08	0.200	0.010	0.100	0.450	0.100
ASTM-P-0109-09	0.060	0.050	0.080	0.300	0.130
ASTM-P-0109-10	0.060	0.200	0.050	0.200	0.050
ASTM-P-0109-11	0.050	0.500	0.120	0.100	0.075
ASTM-P-0109-12	0.025	0.800	0.150	0.200	0.130
ASTM-P-0109-13	0.005	1.000	0.200	0.400	0.150
ASTM-P-0109-14	0.170	0.600	0.250	0.550	0.110
ASTM-P-0109-15	0.100	0.200	0.100	0.200	0.200
ASTM-P-0109-16	0.010	0.400	0.010	0.600	0.250
ASTM-P-0109-17	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil
ASTM-P-0110-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. / Nominal Value	Ba (Wt.%)	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0110-01	0.100	0.600	0.005	0.175	0.060
ASTM-P-0110-02	0.175	0.500	0.200	0.050	0.080
ASTM-P-0110-03	0.000	0.400	0.150	0.300	0.180
ASTM-P-0110-04	0.025	0.260	0.250	0.150	0.120
ASTM-P-0110-05	0.150	0.005	0.005	0.450	0.070
ASTM-P-0110-06	0.000	0.400	0.025	0.350	0.100
ASTM-P-0110-07	0.200	0.300	0.060	0.250	0.120
ASTM-P-0110-08	0.000	0.200	0.100	0.450	0.100
ASTM-P-0110-09	0.100	0.060	0.080	0.300	0.130
ASTM-P-0110-10	0.050	0.060	0.050	0.200	0.050
ASTM-P-0110-11	0.075	0.050	0.120	0.100	0.075
ASTM-P-0110-12	0.010	0.025	0.150	0.200	0.130
ASTM-P-0110-13	0.005	0.005	0.200	0.400	0.150
ASTM-P-0110-14	0.000	0.170	0.250	0.550	0.110
ASTM-P-0110-15	0.000	0.100	0.100	0.200	0.200
ASTM-P-0110-16	0.005	0.010	0.010	0.600	0.250
ASTM-P-0110-17	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil
ASTM-P-0111-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. / Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0111-01	0.100	0.600	0.100	0.005	0.175	0.060
ASTM-P-0111-02	0.175	0.500	0.000	0.200	0.050	0.080
ASTM-P-0111-03	0.000	0.400	0.010	0.150	0.300	0.180
ASTM-P-0111-04	0.025	0.260	0.500	0.250	0.150	0.120
ASTM-P-0111-05	0.150	0.005	1.000	0.005	0.450	0.070
ASTM-P-0111-06	0.000	0.400	0.400	0.025	0.350	0.100
ASTM-P-0111-07	0.200	0.300	0.100	0.060	0.250	0.120
ASTM-P-0111-08	0.000	0.200	0.010	0.100	0.450	0.100
ASTM-P-0111-09	0.100	0.060	0.050	0.080	0.300	0.130
ASTM-P-0111-10	0.050	0.060	0.200	0.050	0.200	0.050
ASTM-P-0111-11	0.075	0.050	0.500	0.120	0.100	0.075
ASTM-P-0111-12	0.010	0.025	0.800	0.150	0.200	0.130
ASTM-P-0111-13	0.005	0.005	1.000	0.200	0.400	0.150
ASTM-P-0111-14	0.000	0.170	0.600	0.250	0.550	0.110
ASTM-P-0111-15	0.000	0.100	0.200	0.100	0.200	0.200
ASTM-P-0111-16	0.005	0.010	0.400	0.010	0.600	0.250
ASTM-P-0111-17	0.000	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil
ASTM-P-0112-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. / Nominal Value	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0112-01	0.000	0.000	0.000	0.000	0.000
ASTM-P-0112-02	0.500	0.150	0.200	0.050	0.080
ASTM-P-0112-03	0.400	0.350	0.150	0.300	0.180
ASTM-P-0112-04	0.260	0.225	0.250	0.150	0.120
ASTM-P-0112-05	0.005	0.450	0.005	0.450	0.070
ASTM-P-0112-06	0.400	0.500	0.025	0.350	0.100
ASTM-P-0112-07	0.300	0.325	0.060	0.250	0.120
ASTM-P-0112-08	0.200	0.250	0.100	0.450	0.100
ASTM-P-0112-09	0.060	0.100	0.080	0.300	0.130
ASTM-P-0112-10	0.060	0.400	0.050	0.200	0.050
ASTM-P-0112-11	0.050	0.300	0.120	0.100	0.075
ASTM-P-0112-12	0.025	0.200	0.150	0.200	0.130
ASTM-P-0112-13	0.005	0.375	0.200	0.400	0.150
ASTM-P-0112-14	0.170	0.175	0.250	0.550	0.110
ASTM-P-0112-15	0.100	0.425	0.100	0.200	0.200
ASTM-P-0112-16	0.010	0.275	0.010	0.600	0.250
ASTM-P-0112-17	0.600	0.100	0.005	0.175	0.060

Elements in Lubricating Oil
ASTM-P-0113-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. / Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0113-01	0.025	0.600	0.100	0.005	0.175	0.060
ASTM-P-0113-02	0.000	0.500	0.150	0.200	0.050	0.080
ASTM-P-0113-03	0.100	0.400	0.350	0.150	0.300	0.180
ASTM-P-0113-04	0.175	0.260	0.225	0.250	0.150	0.120
ASTM-P-0113-05	0.150	0.005	0.000	0.005	0.450	0.070
ASTM-P-0113-06	0.000	0.400	0.500	0.025	0.350	0.100
ASTM-P-0113-07	0.100	0.300	0.325	0.060	0.250	0.120
ASTM-P-0113-08	0.200	0.200	0.250	0.100	0.450	0.100
ASTM-P-0113-09	0.050	0.060	0.100	0.080	0.300	0.130
ASTM-P-0113-10	0.075	0.060	0.400	0.050	0.200	0.050
ASTM-P-0113-11	0.010	0.050	0.300	0.120	0.100	0.075
ASTM-P-0113-12	0.000	0.025	0.200	0.150	0.200	0.130
ASTM-P-0113-13	0.175	0.005	0.375	0.200	0.400	0.150
ASTM-P-0113-14	0.005	0.170	0.175	0.250	0.550	0.110
ASTM-P-0113-15	0.000	0.100	0.425	0.100	0.200	0.200
ASTM-P-0113-16	0.005	0.010	0.275	0.010	0.600	0.250
ASTM-P-0113-17	0.000	0.000	0.000	0.000	0.000	0.000

Lubricating Oil Standards (continued)

Elements in Lubricating Oil
ASTM-P-0114-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0114-01	0.005	0.005	0.050	0.050
ASTM-P-0114-02	0.600	0.000	0.000	0.000
ASTM-P-0114-03	0.000	0.300	0.000	0.000
ASTM-P-0114-04	1.000	0.000	1.000	0.000
ASTM-P-0114-05	0.000	0.000	0.000	0.300
ASTM-P-0114-06	0.005	0.250	0.800	0.300
ASTM-P-0114-07	0.500	0.150	0.500	0.150
ASTM-P-0114-08	0.010	0.200	0.100	0.250
ASTM-P-0114-09	0.050	0.010	0.400	0.075
ASTM-P-0114-10	0.100	0.150	0.200	0.200
ASTM-P-0114-11	0.200	0.200	0.800	0.100
ASTM-P-0114-12	0.400	0.005	0.800	0.300
ASTM-P-0114-13	0.600	0.100	0.500	0.050
ASTM-P-0114-14	0.800	0.010	0.050	0.100
ASTM-P-0114-15	1.000	0.300	1.000	0.150
ASTM-P-0114-16	0.400	0.050	0.600	0.250
ASTM-P-0114-17	0.000	0.000	0.000	0.000

Elements in Lubricating Oil
ASTM-P-0115-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. Nominal Value	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0115-01	0.005	0.100	0.005	0.050	0.050
ASTM-P-0115-02	0.600	0.150	0.000	0.000	0.000
ASTM-P-0115-03	0.000	0.350	0.300	0.000	0.000
ASTM-P-0115-04	1.000	0.225	0.000	1.000	0.000
ASTM-P-0115-05	0.000	0.450	0.000	0.000	0.300
ASTM-P-0115-06	0.005	0.500	0.250	0.800	0.300
ASTM-P-0115-07	0.500	0.325	0.150	0.500	0.150
ASTM-P-0115-08	0.010	0.250	0.200	0.100	0.250
ASTM-P-0115-09	0.050	0.050	0.010	0.400	0.075
ASTM-P-0115-10	0.100	0.400	0.150	0.200	0.200
ASTM-P-0115-11	0.200	0.300	0.200	0.800	0.100
ASTM-P-0115-12	0.400	0.200	0.005	0.800	0.300
ASTM-P-0115-13	0.600	0.375	0.100	0.500	0.050
ASTM-P-0115-14	0.800	0.175	0.010	0.050	0.100
ASTM-P-0115-15	1.000	0.425	0.300	1.000	0.150
ASTM-P-0115-16	0.400	0.275	0.050	0.600	0.250
ASTM-P-0115-17	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil
ASTM-P-0116-SET — 11 x 100 mL

Designed for ASTM D6481

Cat. No. Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0116-01	0.500	1.000	0.500	0.500
ASTM-P-0116-02	2.000	1.000	2.500	2.000
ASTM-P-0116-03	2.000	1.250	1.000	1.500
ASTM-P-0116-04	5.000	0.000	0.000	0.000
ASTM-P-0116-05	4.000	0.500	1.250	0.500
ASTM-P-0116-06	2.500	0.750	4.000	1.000
ASTM-P-0116-07	3.500	0.000	1.500	1.000
ASTM-P-0116-08	0.500	2.000	5.000	1.000
ASTM-P-0116-09	1.000	0.750	2.000	1.500
ASTM-P-0116-10	2.500	1.200	3.000	0.500
ASTM-P-0116-11	0.000	0.000	0.000	0.000

Elements in Lubricating Oil
ASTM-P-0117-SET — 10 x 100 mL

Designed for ASTM D6443

Cat. No. Nominal Value	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0117-01	0.020	0.030	0.010	0.200	0.250	1.000	0.020
ASTM-P-0117-02	0.020	0.020	0.050	0.200	0.020	0.020	0.250
ASTM-P-0117-03	0.020	0.200	0.010	0.040	0.250	0.150	0.250
ASTM-P-0117-04	0.020	0.200	0.050	0.040	0.020	1.000	0.020
ASTM-P-0117-05	0.400	0.020	0.010	0.040	0.020	1.000	0.250
ASTM-P-0117-06	0.400	0.020	0.050	0.040	0.250	0.020	0.020
ASTM-P-0117-07	0.400	0.200	0.010	0.200	0.020	0.020	0.050
ASTM-P-0117-08	0.400	0.200	0.050	0.200	0.250	1.000	0.250
ASTM-P-0117-09	0.200	0.100	0.025	0.080	0.150	0.500	0.100
ASTM-P-0117-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil
ASTM-P-0118-SET — 10 x 100 mL

Designed for ASTM D4628, D4927, D4951, D6443

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0118-01	0.020	0.020	0.030	0.010	0.200	0.250	1.000	0.020
ASTM-P-0118-02	0.250	0.020	0.020	0.050	0.200	0.020	0.020	0.250
ASTM-P-0118-03	0.020	0.020	0.200	0.010	0.040	0.250	0.150	0.250
ASTM-P-0118-04	0.250	0.020	0.200	0.050	0.040	0.020	1.000	0.020
ASTM-P-0118-05	0.020	0.400	0.020	0.010	0.040	0.020	1.000	0.250
ASTM-P-0118-06	0.250	0.400	0.020	0.050	0.040	0.250	0.020	0.020
ASTM-P-0118-07	0.020	0.400	0.200	0.010	0.200	0.020	0.020	0.050
ASTM-P-0118-08	0.250	0.400	0.200	0.050	0.200	0.250	1.000	0.250
ASTM-P-0118-09	0.130	0.200	0.100	0.025	0.080	0.150	0.500	0.100
ASTM-P-0118-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Lubricating Oil Standards (continued)

Elements in Lubricating Oil

ASTM-P-0119-SET — 22 x 100 mL

Designed for ASTM D4927, D6443, D6481 & D7751

Cat. No. Nominal Value	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0119-01	0.300	0.080	0.030	0.060	0.060	0.275	0.060
ASTM-P-0119-02	0.250	0.100	0.000	0.010	0.150	0.000	0.150
ASTM-P-0119-03	0.500	0.000	0.035	0.160	0.150	0.000	0.020
ASTM-P-0119-04	0.350	0.010	0.000	0.120	0.080	0.200	0.000
ASTM-P-0119-05	0.110	0.000	0.015	0.100	0.100	0.300	0.050
ASTM-P-0119-06	0.200	0.100	0.000	0.200	0.050	0.250	0.150
ASTM-P-0119-07	0.000	0.050	0.025	0.000	0.000	0.450	0.020
ASTM-P-0119-08	0.150	0.030	0.000	0.100	0.030	0.400	0.040
ASTM-P-0119-09	0.250	0.150	0.010	0.160	0.000	0.350	0.080
ASTM-P-0119-10	0.110	0.150	0.040	0.005	0.030	0.750	0.150
ASTM-P-0119-11	0.260	0.050	0.000	0.000	0.000	0.750	0.000
ASTM-P-0119-12	0.200	0.000	0.005	0.140	0.080	0.500	0.080
ASTM-P-0119-13	0.000	0.000	0.005	0.020	0.020	0.200	0.020
ASTM-P-0119-14	0.070	0.150	0.020	0.080	0.140	0.650	0.150
ASTM-P-0119-15	0.050	0.000	0.000	0.000	0.150	0.000	0.000
ASTM-P-0119-16	0.400	0.000	0.001	0.080	0.000	0.500	0.020
ASTM-P-0119-17	0.180	0.020	0.020	0.000	0.020	0.600	0.060
ASTM-P-0119-18	0.400	0.010	0.001	0.010	0.020	0.000	0.000
ASTM-P-0119-19	0.010	0.020	0.040	0.010	0.020	0.200	0.100
ASTM-P-0119-20	0.050	0.005	0.050	0.000	0.008	0.000	0.120
ASTM-P-0119-21	0.200	0.050	0.020	0.080	0.050	0.275	0.050
ASTM-P-0119-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0120-SET — 23 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0120-01	0.100	0.300	0.080	0.030	0.060	0.060	0.275	0.060
ASTM-P-0120-02	0.175	0.250	0.100	0.000	0.010	0.150	0.000	0.150
ASTM-P-0120-03	0.040	0.500	0.000	0.035	0.160	0.150	0.000	0.020
ASTM-P-0120-04	0.020	0.350	0.010	0.000	0.120	0.080	0.200	0.000
ASTM-P-0120-05	0.150	0.110	0.000	0.015	0.100	0.100	0.300	0.050
ASTM-P-0120-06	0.000	0.200	0.100	0.000	0.200	0.050	0.250	0.150
ASTM-P-0120-07	0.200	0.000	0.050	0.025	0.000	0.000	0.450	0.020
ASTM-P-0120-08	0.000	0.150	0.030	0.000	0.100	0.030	0.400	0.040
ASTM-P-0120-09	0.000	0.250	0.150	0.010	0.160	0.000	0.350	0.080
ASTM-P-0120-10	0.000	0.110	0.150	0.040	0.005	0.030	0.750	0.150
ASTM-P-0120-11	0.100	0.260	0.050	0.000	0.000	0.000	0.750	0.000
ASTM-P-0120-12	0.050	0.200	0.000	0.005	0.140	0.080	0.500	0.080
ASTM-P-0120-13	0.000	0.000	0.000	0.005	0.020	0.020	0.200	0.020
ASTM-P-0120-14	0.080	0.070	0.150	0.020	0.080	0.140	0.650	0.150
ASTM-P-0120-15	0.010	0.050	0.000	0.000	0.000	0.150	0.000	0.000
ASTM-P-0120-16	0.000	0.400	0.000	0.001	0.080	0.000	0.500	0.020
ASTM-P-0120-17	0.000	0.180	0.020	0.020	0.000	0.020	0.600	0.060
ASTM-P-0120-18	0.000	0.400	0.010	0.001	0.010	0.020	0.000	0.000
ASTM-P-0120-19	0.150	0.010	0.020	0.040	0.010	0.020	0.200	0.100
ASTM-P-0120-20	0.005	0.050	0.005	0.050	0.000	0.008	0.000	0.120
ASTM-P-0120-21	0.100	0.200	0.050	0.020	0.080	0.050	0.275	0.050
ASTM-P-0120-22	0.120	0.200	0.000	0.000	0.000	0.000	0.750	0.000
ASTM-P-0120-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standards of Interest

Concentrations for the sets on pages 44-47 are targets. Actual production lots may vary.

Metal Working Fluids

ASTM-P-0121-SET — 13 x 100 mL

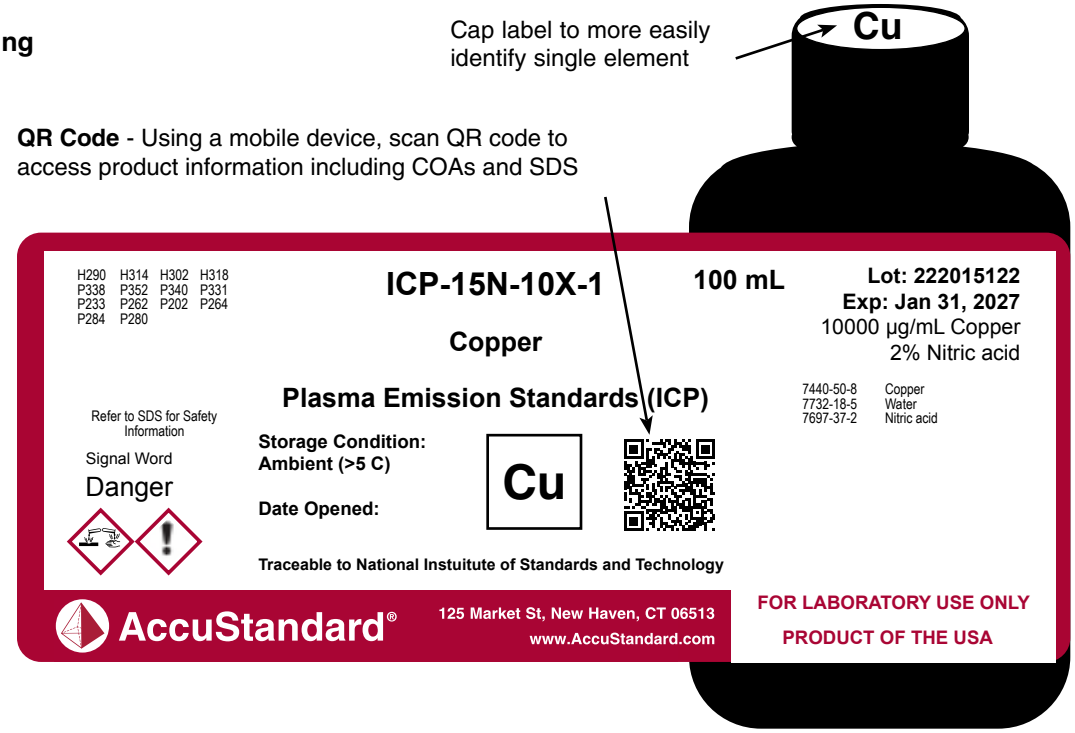
Cat. No. Nominal Value	Cl (Wt.%)	P (Wt.%)	S (Wt.%)
ASTM-P-0121-01	0.000	0.000	0.000
ASTM-P-0121-02	0.750	0.025	0.500
ASTM-P-0121-03	0.050	0.100	3.000
ASTM-P-0121-04	1.000	0.500	2.500
ASTM-P-0121-05	0.100	0.005	2.000
ASTM-P-0121-06	1.500	0.200	1.000
ASTM-P-0121-07	2.000	0.005	3.000
ASTM-P-0121-08	1.000	0.050	0.100
ASTM-P-0121-09	0.500	0.400	0.000
ASTM-P-0121-10	2.000	0.200	1.500
ASTM-P-0121-11	0.000	0.500	1.500
ASTM-P-0121-12	1.250	0.010	0.050
ASTM-P-0121-13	0.050	0.300	0.050

Packaging and Shipping

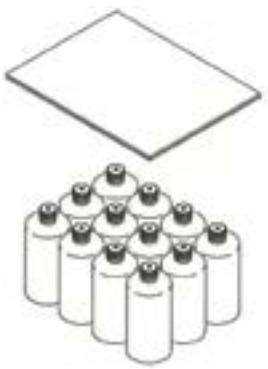
Product labeling

Cap label to more easily identify single element

QR Code - Using a mobile device, scan QR code to access product information including COAs and SDS

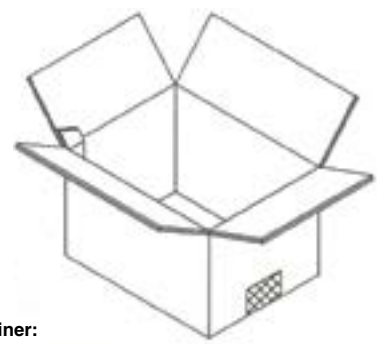


Packaging and Shipping



Made with recyclable and biogradable materials

Dividers:
Natural Kraft
Corrugated Fiberboard



Shipping Container:
Natural Kraft Corrugated Fiberboard

Shipping

We have many years of experience shipping worldwide, and offer the best and most efficient options available.

- Multiple shipping options available for delivery.
- Packaging maximizes space and keeps dimensions and weight down to minimize shipping charges.
- Designed and tested to meet DOT and IATA shipping regulations.

Products containing acid generally require a hazardous fee for air shipments.
Inorganic products in water generally do not.

Custom Formulations

Custom standards are made with the same attention to detail and high quality materials as the standards found in this catalog. The same manufacturing process is followed and custom standards are traceable to NIST SRMs wherever possible. You can be confident that you are not sacrificing quality when ordering a custom standard produced under the guidelines of our ISO 17034 accredited quality system.

- Fast turnaround time
- Order exactly what you need
- 18 month shelf life on most products
- Packaging options and bulk discounts available
- Committed technical support to answer your questions
- Vertified by ICP, ICP-MS, or IC
- Traceable to NIST SRMs wherever possible

Custom formulations may be requested by contacting Inorganic Technical Service at inotech@accustandard.com or by visiting our website https://www.accustandard.com/custom-quote-request

Certification

- Concentrations are certified gravimetrically and QC verified instrumentally.
- Traceable to NIST wherever possible.
- Certificate of Analysis documents the certified gravimetric values.
- 18 month expiration period for most products.

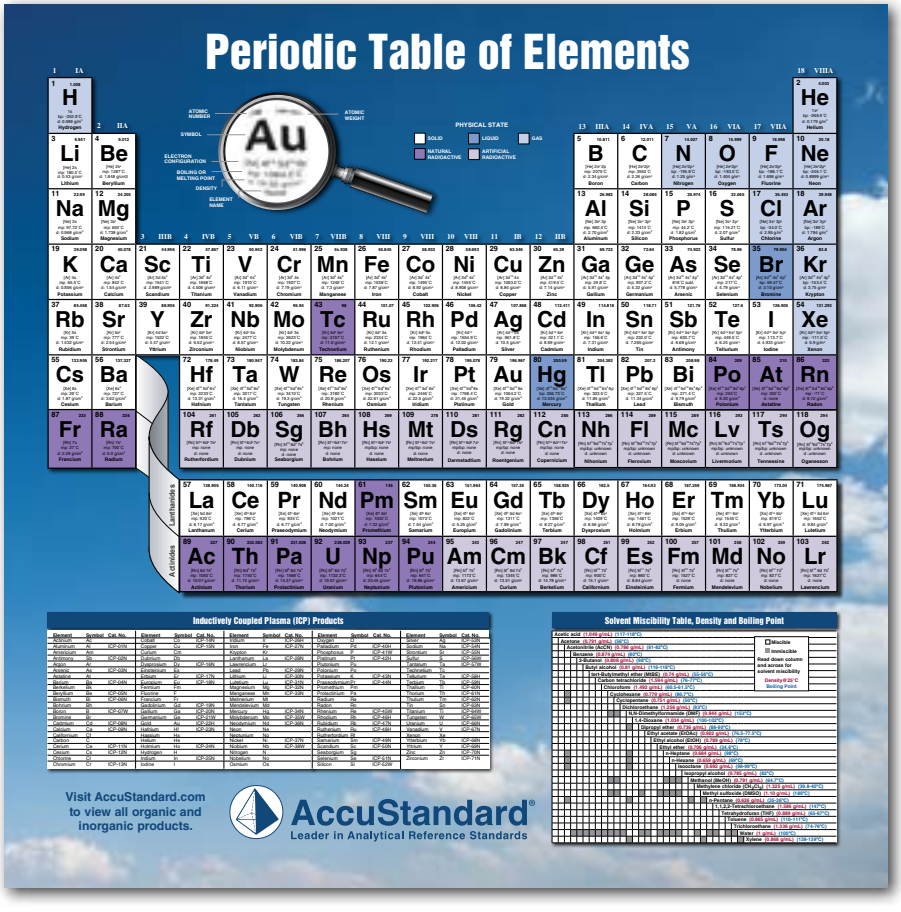
Preparation

- Balances used are calibrated against NIST traceable weights.
- Solutions diluted to volume using Class A glassware.
- Highest purity raw materials and acids used.
- Packaged in pre-cleaned bottles.

Packaging Options

- Discounted pricing for bulk quantities.
- 5 x 100 mL or 1 x 500 mL minimum purchase.

Periodic Table poster available, contact 203-786-5290 or email orders@accustandard.com



(20 x 20 inch laminated poster)

With references, such as unit conversions, general constants, element symbols, atomic weights and solvent miscibility table with densities and boiling points.

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