Inorganic Standards

3 Year
Shelf Life on Most ICP & AA Single Element Standards

TRACEABLE AccuTrace Reference Standards CERTIFIED

AccuTrace Documentation includes:

Tracable to NIST SRM by wet chemical assay and/or ICP, on final solution lot for single element standards, and on solution concentrates for multielements standards.

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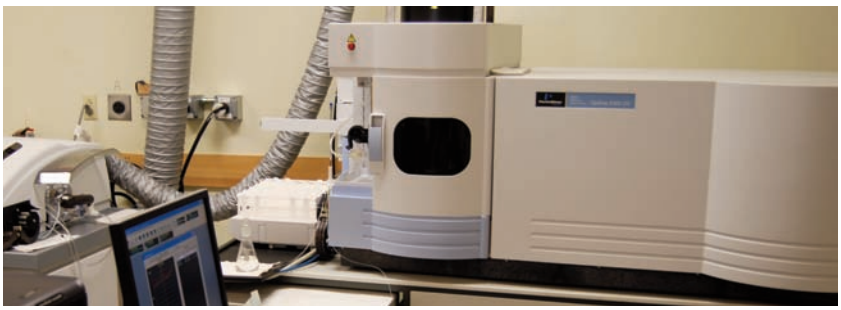
Quality Control

AccuStandard's Inorganic Department combines the best of state of the art instrumentation with classical stoichometric analysis, to bring you the most reliable Standards available.
Why choose AccuStandard for your Inorganic Analytical Needs?

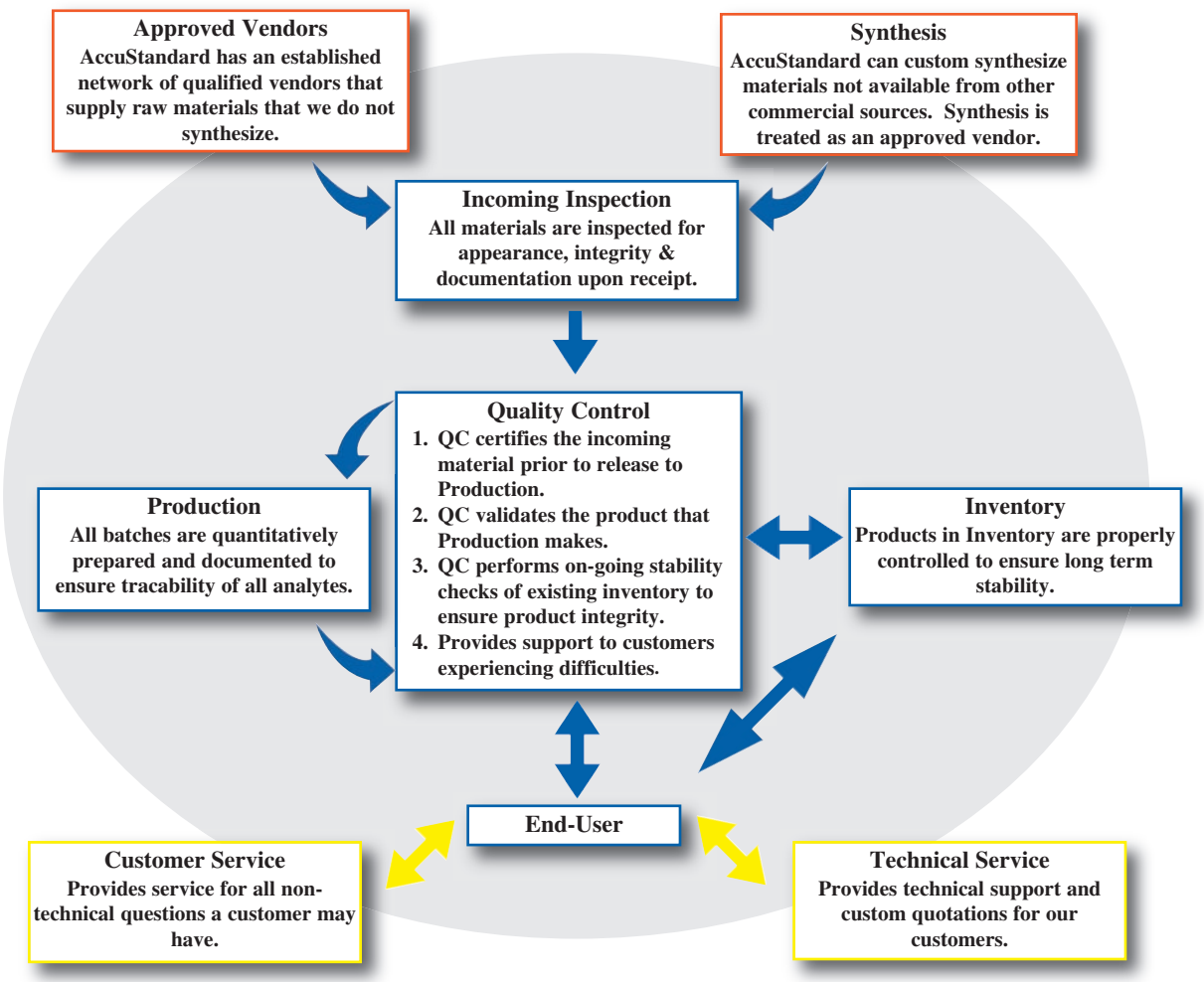
- Standards are our only product.
- Thousands of Inorganic Standards - the widest selection available.
  - ❑ ICP
  - ❑ ICP/MS
  - ❑ AA
  - ❑ IC
  - ❑ Wet Chemical
  - ❑ Wear Metals
- No across the board price increase in 20 years
- 3-year Shelf Life on single ICP, AA and ICP/MS Standards
- Custom Formulations
- Small Batch Sizes for Fresher Lots
- Technical Service from people with Real World Laboratory Experience
- 24/7 Online Access to MSDSs, COAs, Literature and Product Support
- Accredited to ISO 17025 and certified to ISO 9001:2000

State of the Art Instrumentation



Perkin Elmer Optima 5300 Dual View ICP/OES

Perkin Elmer Elan 9000 ICP/MS



AccuTrace™

Density included for easy conversion to weight/weight applications.

Most Single element standards have 3 Year expiration period.

Impurity Scan for 68 elements in final solution.

Uncertainty reported for statistical confidence.

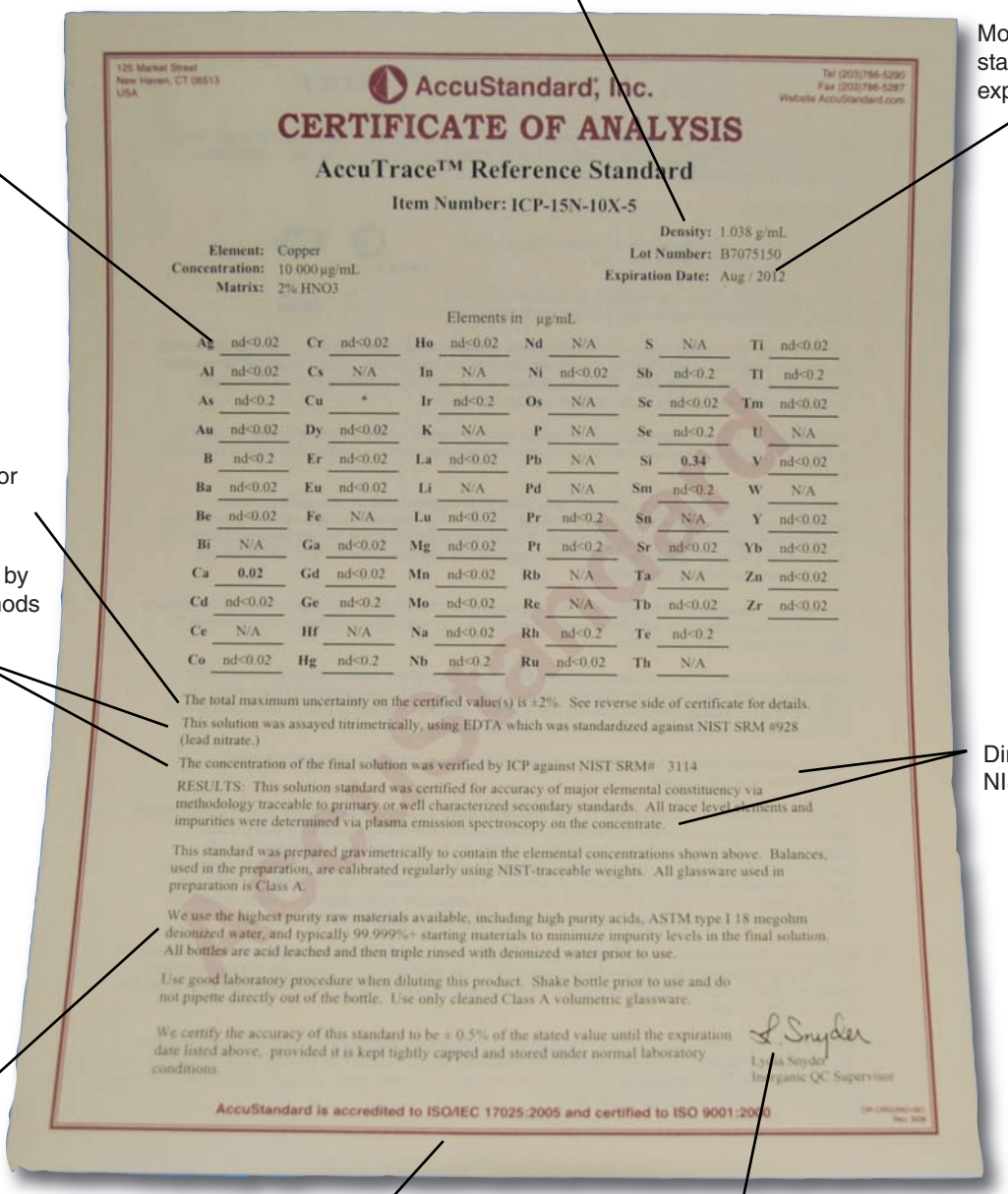
Concentration verified by two independent methods for added insurance.

Directly traceable to NIST SRM's.

Highest purity starting materials & matrices used.

Standards prepared under our ISO 9001 & ISO 17025 Quality System.

Signature approval indicating product integrity to specifications.



AccuStandard, Inc.

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Item Number: ICP-15N-10X-5

Element: Copper
Concentration: 10 000 µg/mL
Matrix: 2% HNO3

Density: 1.038 g/mL
Lot Number: B7075150
Expiration Date: Aug / 2012

Elements in µg/mL

Ag	nd<0.02	Cr	nd<0.02	Ho	nd<0.02	Nd	N/A	S	N/A	Ti	nd<0.02
Al	nd<0.02	Cs	N/A	In	N/A	Ni	nd<0.02	Sb	nd<0.2	Tl	nd<0.2
As	nd<0.2	Cu	*	Ir	nd<0.2	Os	N/A	Sc	nd<0.02	Tm	nd<0.02
Au	nd<0.02	Dy	nd<0.02	K	N/A	P	N/A	Se	nd<0.2	U	N/A
B	nd<0.2	Er	nd<0.02	La	nd<0.02	Pb	N/A	Si	0.34	V	nd<0.02
Ba	nd<0.02	Eu	nd<0.02	Li	N/A	Pd	N/A	Sm	nd<0.2	W	N/A
Be	nd<0.02	Fe	N/A	Lu	nd<0.02	Pr	nd<0.2	Sn	N/A	Y	nd<0.02
Bi	N/A	Ga	nd<0.02	Mg	nd<0.02	Pt	nd<0.2	Sr	nd<0.02	Yb	nd<0.02
Ca	0.02	Gd	nd<0.02	Mn	nd<0.02	Rb	N/A	Ta	N/A	Zn	nd<0.02
Cd	nd<0.02	Ge	nd<0.2	Mo	nd<0.02	Re	N/A	Tb	nd<0.02	Zr	nd<0.02
Ce	N/A	Hf	N/A	Na	nd<0.02	Rh	nd<0.2	Te	nd<0.2		
Co	nd<0.02	Hg	nd<0.2	Nb	nd<0.2	Ru	nd<0.02	Th	N/A		

The total maximum uncertainty on the certified value(s) is ±2%. See reverse side of certificate for details.

This solution was assayed titrimetrically, using EDTA which was standardized against NIST SRM #928 (lead nitrate.)

The concentration of the final solution was verified by ICP against NIST SRM# 3114

RESULTS: This solution standard was certified for accuracy of major elemental constituency via methodology traceable to primary or well characterized secondary standards. All trace level elements and impurities were determined via plasma emission spectroscopy on the concentrate.

This standard was prepared gravimetrically to contain the elemental concentrations shown above. Balances, used in the preparation, are calibrated regularly using NIST-traceable weights. All glassware used in preparation is Class A.

We use the highest purity raw materials available, including high purity acids, ASTM type I 18 megohm deionized water, and typically 99.999%+ starting materials to minimize impurity levels in the final solution. All bottles are acid leached and then triple rinsed with deionized water prior to use.

Use good laboratory procedure when diluting this product. Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ± 0.5% of the stated value until the expiration date listed above, provided it is kept tightly capped and stored under normal laboratory conditions.

L Snyder

Lya Snyder
Inorganic QC Supervisor

AccuStandard is accredited to ISO/IEC 17025:2005 and certified to ISO 9001:2008

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
- Actual Lot Analysis provided on label and C of A

NoHaz Option available with Most ICP & AA Single Element Standards

SAVINGS:

- No Hazardous Shipping Fees
- Lower Shipping Costs (less weight)
- Yields More – 500 mL from 20 mL concentrate

CONVENIENCE & ASSURANCE:

- Includes empty pre-washed, pre-labeled HDPE bottle (250 mL for 10,000 µg/mL; 500 mL for 25,000 µg/mL)
- Certificate of Analysis with every product

Haz Fees

Single Element ICPs require a Hazardous Shipping Fee, except the "NoHaz™" products in the right columns, and except elements marked with an asterisk *

Single Element ICP				NoHaz 20 mL Size (No Hazardous shipping charge)	
Element Starting Material Matrix	**Unit**	**1000 µg/mL** **Cat. No.**	**10,000 µg/mL** **Cat. No.**	**20 mL (NoHaz)** **10,000 µg/mL** **Cat. No.**	**20 mL (NoHaz)** **25,000 µg/mL** **Cat. No.**
Aluminum	50 mL	--------- --	ICP-01N-10X-0.5	ICP-01N-10X-20ML	ICP-01N-25X-20ML
$Al(NO_3)_3 \cdot 9H_2O$	100 mL	ICP-01N-1	ICP-01N-10X-1		
2-5% Nitric acid	500 mL	ICP-01N-5	ICP-01N-10X-5		
Antimony	50 mL	--------- --	ICP-02N-10X-0.5	ICP-02N-10X-20ML	---------- --
Sb Dilute HNO_3 tr	100 mL	ICP-02N-1	ICP-02N-10X-1		
Tartaric acid	500 mL	ICP-02N-5	ICP-02N-10X-5		
Arsenic	50 mL	--------- --	ICP-03N-10X-0.5	ICP-03N-10X-20ML	ICP-03N-25X-20ML
As	100 mL	ICP-03N-1	ICP-03N-10X-1		
2-5% Nitric acid	500 mL	ICP-03N-5	ICP-03N-10X-5		
Barium	50 mL	--------- --	ICP-04N-10X-0.5	ICP-04N-10X-20ML	ICP-04N-25X-20ML
$Ba(NO_3)_2$	100 mL	ICP-04N-1	ICP-04N-10X-1		
2-5% Nitric acid	500 mL	ICP-04N-5	ICP-04N-10X-5		
Beryllium	50 mL	--------- --	ICP-05N-10X-0.5	ICP-05N-10X-20ML	---------- --
$BeO(C_2H_3O_2)_6$	100 mL	ICP-05N-1	ICP-05N-10X-1		
2-5% Nitric acid	500 mL	ICP-05N-5	ICP-05N-10X-5		
Bismuth	50 mL	--------- --	ICP-06N-10X-0.5	ICP-06N-10X-20ML	ICP-06N-25X-20ML
Bi	100 mL	ICP-06N-1	ICP-06N-10X-1		
2-10% Nitric acid	500 mL	ICP-06N-5	ICP-06N-10X-5		

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Single Element ICP

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	NoHaz 20 mL Size (No Hazardous shipping charge) 20 mL (NoHaz) 10,000 µg/mL Cat. No.	20 mL (NoHaz) 25,000 µg/mL Cat. No.
Boron *	50 mL	--------- --	ICP-07W-10X-0.5	ICP-07W-10X-20ML	---------- --
H_3BO_3	100 mL	ICP-07W-1	ICP-07W-10X-1		
Water tr. NH_4OH	500 mL	ICP-07W-5	ICP-07W-10X-5		
Cadmium	50 mL	--------- --	ICP-08N-10X-0.5	ICP-08N-10X-20ML	ICP-08N-25X-20ML
Cd	100 mL	ICP-08N-1	ICP-08N-10X-1		
2-5% Nitric acid	500 mL	ICP-08N-5	ICP-08N-10X-5		
Calcium	50 mL	--------- --	ICP-09N-10X-0.5	ICP-09N-10X-20ML	ICP-09N-25X-20ML
$CaCO_3$	100 mL	ICP-09N-1	ICP-09N-10X-1		
2-5% Nitric acid	500 mL	ICP-09N-5	ICP-09N-10X-5		
Cerium	50 mL	--------- --	ICP-11N-10X-0.5	ICP-11N-10X-20ML	ICP-11N-25X-20ML
$Ce(NO_3)_3$	100 mL	ICP-11N-1	ICP-11N-10X-1		
2-5% Nitric acid	500 mL	ICP-11N-5	ICP-11N-10X-5		
Cesium	50 mL	--------- --	ICP-12N-10X-0.5	ICP-12N-10X-20ML	ICP-12N-25X-20ML
$CsNO_3$	100 mL	ICP-12N-1	ICP-12N-10X-1		
2-5% Nitric acid	500 mL	ICP-12N-5	ICP-12N-10X-5		
Chromium reduced to (+3) state	50 mL	--------- --	ICP-13N-10X-0.5	ICP-13N-10X-20ML	ICP-13N-25X-20ML
$(NH_4)_2Cr_2O_7$	100 mL	ICP-13N-1	ICP-13N-10X-1		
2-5% Nitric acid	500 mL	ICP-13N-5	ICP-13N-10X-5		
Cobalt	50 mL	--------- --	ICP-14N-10X-0.5	ICP-14N-10X-20ML	ICP-14N-25X-20ML
Co	100 mL	ICP-14N-1	ICP-14N-10X-1		
2-5% Nitric acid	500 mL	ICP-14N-5	ICP-14N-10X-5		
Copper	50 mL	--------- --	ICP-15N-10X-0.5	ICP-15N-10X-20ML	ICP-15N-25X-20ML
Cu	100 mL	ICP-15N-1	ICP-15N-10X-1		
2-5% Nitric acid	500 mL	ICP-15N-5	ICP-15N-10X-5		
Dysprosium	50 mL	--------- --	ICP-16N-10X-0.5	ICP-16N-10X-20ML	ICP-16N-25X-20ML
Dy_2O_3	100 mL	ICP-16N-1	ICP-16N-10X-1		
2-5% Nitric acid	500 mL	ICP-16N-5	ICP-16N-10X-5		
Erbium	50 mL	--------- --	ICP-17N-10X-0.5	ICP-17N-10X-20ML	ICP-17N-25X-20ML
Er_2O_3	100 mL	ICP-17N-1	ICP-17N-10X-1		
2-5% Nitric acid	500 mL	ICP-17N-5	ICP-17N-10X-5		
Europium	50 mL	--------- --	ICP-18N-10X-0.5	ICP-18N-10X-20ML	ICP-18N-25X-20ML
Eu_2O_3	100 mL	ICP-18N-1	ICP-18N-10X-1		
2-5% Nitric acid	500 mL	ICP-18N-5	ICP-18N-10X-5		
Gadolinium	50 mL	--------- --	ICP-19N-10X-0.5	ICP-19N-10X-20ML	ICP-19N-25X-20ML
Gd_2O_3	100 mL	ICP-19N-1	ICP-19N-10X-1		
2-5% Nitric acid	500 mL	ICP-19N-5	ICP-19N-10X-5		
Gallium	50 mL	--------- --	ICP-20N-10X-0.5	ICP-20N-10X-20ML	---------- --
Ga	100 mL	ICP-20N-1	ICP-20N-10X-1		
2-5% Nitric acid	500 mL	ICP-20N-5	ICP-20N-10X-5		
Germanium *	50 mL	--------- --	ICP-21W-10X-0.5	ICP-21W-10X-20ML	---------- --
$(NH_4)_2GeF_6$	100 mL	ICP-21W-1	ICP-21W-10X-1		
Water tr. HF	500 mL	ICP-21W-5	ICP-21W-10X-5		
Gold	50 mL	--------- --	ICP-22H-10X-0.5	ICP-22H-10X-20ML	ICP-22H-25X-20ML
Au	100 mL	ICP-22H-1	ICP-22H-10X-1		
10% HCl (min.)	500 mL	ICP-22H-5	ICP-22H-10X-5		
Hafnium	50 mL	--------- --	ICP-23N-10X-0.5	ICP-23N-10X-20ML	ICP-23N-25X-20ML
HfO_2	100 mL	ICP-23N-1	ICP-23N-10X-1		
2-5% Nitric acid tr. HF	500 mL	ICP-23N-5	ICP-23N-10X-5		
Holmium	50 mL	--------- --	ICP-24N-10X-0.5	ICP-24N-10X-20ML	ICP-24N-25X-20ML
Ho_2O_3	100 mL	ICP-24N-1	ICP-24N-10X-1		
2-5% Nitric acid	500 mL	ICP-24N-5	ICP-24N-10X-5		

Single Element ICP

NoHaz 20 mL Size (No Hazardous shipping charge)

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	20 mL (NoHaz) 10,000 µg/mL Cat. No.	20 mL (NoHaz) 25,000 µg/mL Cat. No.
Indium	50 mL	--------- --	ICP-25N-10X-0.5	ICP-25N-10X-20ML	ICP-25N-25X-20ML
In	100 mL	ICP-25N-1	ICP-25N-10X-1		
2-5% Nitric acid	500 mL	ICP-25N-5	ICP-25N-10X-5		
Iridium	50 mL	--------- --	ICP-26H-10X-0.5	ICP-26H-10X-20ML	ICP-26H-25X-20ML
$IrCl_3 \cdot 3H_20$	100 mL	ICP-26H-1	ICP-26H-10X-1		
10% HCl (min.)	500 mL	ICP-26H-5	ICP-26H-10X-5		
Iron	50 mL	--------- --	ICP-27N-10X-0.5	ICP-27N-10X-20ML	ICP-27N-25X-20ML
Fe	100 mL	ICP-27N-1	ICP-27N-10X-1		
2-5% Nitric acid	500 mL	ICP-27N-5	ICP-27N-10X-5		
Lanthanum	50 mL	--------- --	ICP-28N-10X-0.5	ICP-28N-10X-20ML	ICP-28N-25X-20ML
La_2O_3	100 mL	ICP-28N-1	ICP-28N-10X-1		
2-5% Nitric acid	500 mL	ICP-28N-5	ICP-28N-10X-5		
Lead	50 mL	--------- --	ICP-29N-10X-0.5	ICP-29N-10X-20ML	ICP-29N-25X-20ML
$Pb(NO_3)_2$	100 mL	ICP-29N-1	ICP-29N-10X-1		
2-5% Nitric acid	500 mL	ICP-29N-5	ICP-29N-10X-5		
Lithium	50 mL	--------- --	ICP-30N-10X-0.5	ICP-30N-10X-20ML	ICP-30N-25X-20ML
Li_2CO_3	100 mL	ICP-30N-1	ICP-30N-10X-1		
2-5% Nitric acid	500 mL	ICP-30N-5	ICP-30N-10X-5		
Lutetium	50 mL	--------- --	ICP-31N-10X-0.5	ICP-31N-10X-20ML	ICP-31N-25X-20ML
Lu_2O_3	100 mL	ICP-31N-1	ICP-31N-10X-1		
2-5% Nitric acid	500 mL	ICP-31N-5	ICP-31N-10X-5		
Magnesium	50 mL	--------- --	ICP-32N-10X-0.5	ICP-32N-10X-20ML	ICP-32N-25X-20ML
MgO	100 mL	ICP-32N-1	ICP-32N-10X-1		
2-5% Nitric acid	500 mL	ICP-32N-5	ICP-32N-10X-5		
Manganese	50 mL	--------- --	ICP-33N-10X-0.5	ICP-33N-10X-20ML	ICP-33N-25X-20ML
$Mn(C_2H_3O_2)_2$	100 mL	ICP-33N-1	ICP-33N-10X-1		
2-5% Nitric acid	500 mL	ICP-33N-5	ICP-33N-10X-5		
Mercury	50 mL	--------- --	ICP-34N-10X-0.5	ICP-34N-10X-20ML	ICP-34N-25X-20ML
Hg	100 mL	ICP-34N-1	ICP-34N-10X-1		
10% Nitric acid	500 mL	ICP-34N-5	ICP-34N-10X-5		
Molybdenum *	50 mL	--------- --	ICP-35W-10X-0.5	ICP-35W-10X-20ML	ICP-35W-25X-20ML
$(NH_4)_2MoO_4$	100 mL	ICP-35W-1	ICP-35W-10X-1		
Water tr. NH_4OH	500 mL	ICP-35W-5	ICP-35W-10X-5		
Neodymium	50 mL	--------- --	ICP-36N-10X-0.5	ICP-36N-10X-20ML	ICP-36N-25X-20ML
Nd_2O_3	100 mL	ICP-36N-1	ICP-36N-10X-1		
2-5% Nitric acid	500 mL	ICP-36N-5	ICP-36N-10X-5		
Nickel	50 mL	--------- --	ICP-37N-10X-0.5	ICP-37N-10X-20ML	ICP-37N-25X-20ML
Ni	100 mL	ICP-37N-1	ICP-37N-10X-1		
2-5% Nitric acid	500 mL	ICP-37N-5	ICP-37N-10X-5		
Niobium *	50 mL	--------- --	ICP-38W-10X-0.5	ICP-38W-10X-20ML	ICP-38W-25X-20ML
Nb_2O_5	100 mL	ICP-38W-1	ICP-38W-10X-1		
Water tr. HF	500 mL	ICP-38W-5	ICP-38W-10X-5		
Palladium	50 mL	--------- --	ICP-40H-10X-0.5	ICP-40H-10X-20ML	ICP-40H-25X-20ML
Pd	100 mL	ICP-40H-1	ICP-40H-10X-1		
10% HCl (min.)	500 mL	ICP-40H-5	ICP-40H-10X-5		
Phosphorus *	50 mL	--------- --	ICP-41W-10X-0.5	ICP-41W-10X-20ML	---------- --
$NH_4H_2PO_4$	100 mL	ICP-41W-1	ICP-41W-10X-1		
Water	500 mL	ICP-41W-5	ICP-41W-10X-5		
Platinum	50 mL	--------- --	ICP-42H-10X-0.5	ICP-42H-10X-20ML	ICP-42H-25X-20ML
Pt	100 mL	ICP-42H-1	ICP-42H-10X-1		
10% HCl (min.)	500 mL	ICP-42H-5	ICP-42H-10X-5		
Potassium	50 mL	--------- --	ICP-43N-10X-0.5	ICP-43N-10X-20ML	ICP-43N-25X-20ML
KNO_3	100 mL	ICP-43N-1	ICP-43N-10X-1		
2-5% Nitric acid	500 mL	ICP-43N-5	ICP-43N-10X-5		
Praseodymium	50 mL	--------- --	ICP-44N-10X-0.5	ICP-44N-10X-20ML	ICP-44N-25X-20ML
Pr_6O_{11}	100 mL	ICP-44N-1	ICP-44N-10X-1		
2-5% Nitric acid	500 mL	ICP-44N-5	ICP-44N-10X-5		
Rhenium *	50 mL	--------- --	ICP-45W-10X-0.5	ICP-45W-10X-20ML	ICP-45W-25X-20ML
Re	100 mL	ICP-45W-1	ICP-45W-10X-1		
Water tr. Nitric acid	500 mL	ICP-45W-5	ICP-45W-10X-5		

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Haz Fees

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Single Element ICP

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	NoHaz 20 mL Size (No Hazardous shipping charge) 20 mL (NoHaz) 10,000 µg/mL Cat. No.	20 mL (NoHaz) 25,000 µg/mL Cat. No.
Rhodium	50 mL	--------- --	ICP-46H-10X-0.5	ICP-46H-10X-20ML	ICP-46H-25X-20ML
$RhCl_3 \cdot 3H_2O$	100 mL	ICP-46H-1	ICP-46H-10X-1		
10% HCl (min.)	500 mL	ICP-46H-5	ICP-46H-10X-5		
Rubidium	50 mL	--------- --	ICP-47N-10X-0.5	ICP-47N-10X-20ML	ICP-47N-25X-20ML
$RbNO_3$	100 mL	ICP-47N-1	ICP-47N-10X-1		
2-5% Nitric acid	500 mL	ICP-47N-5	ICP-47N-10X-5		
Ruthenium	50 mL	--------- --	ICP-48H-10X-0.5	ICP-48H-10X-20ML	ICP-48H-25X-20ML
$RuCl_3 \cdot 3H_2O$	100 mL	ICP-48H-1	ICP-48H-10X-1		
10% HCl	500 mL	ICP-48H-5	ICP-48H-10X-5		
Samarium	50 mL	--------- --	ICP-49N-10X-0.5	ICP-49N-10X-20ML	ICP-49N-25X-20ML
Sm_2O_3	100 mL	ICP-49N-1	ICP-49N-10X-1		
2-5% Nitric acid	500 mL	ICP-49N-5	ICP-49N-10X-5		
Scandium	50 mL	--------- --	ICP-50N-10X-0.5	ICP-50N-10X-20ML	ICP-50N-25X-20ML
Sc_2O_3	100 mL	ICP-50N-1	ICP-50N-10X-1		
2-5% Nitric acid	500 mL	ICP-50N-5	ICP-50N-10X-5		
Selenium	50 mL	--------- --	ICP-51N-10X-0.5	ICP-51N-10X-20ML	ICP-51N-25X-20ML
Se	100 mL	ICP-51N-1	ICP-51N-10X-1		
2-5% Nitric acid	500 mL	ICP-51N-5	ICP-51N-10X-5		
Silicon *	50 mL	--------- --	ICP-52W-10X-0.5	ICP-52W-10X-20ML	---------- --
$(NH_4)2SiF_6$	100 mL	ICP-52W-1	ICP-52W-10X-1		
Water tr. HF	500 mL	ICP-52W-5	ICP-52W-10X-5		
Silver	50 mL	--------- --	ICP-53N-10X-0.5	ICP-53N-10X-20ML	ICP-53N-25X-20ML
$AgNO_3$	100 mL	ICP-53N-1	ICP-53N-10X-1		
2-5% Nitric acid	500 mL	ICP-53N-5	ICP-53N-10X-5		
Sodium	50 mL	--------- --	ICP-54N-10X-0.5	ICP-54N-10X-20ML	ICP-54N-25X-20ML
$NaNO_3$	100 mL	ICP-54N-1	ICP-54N-10X-1		
2-5% Nitric acid	500 mL	ICP-54N-5	ICP-54N-10X-5		
Strontium	50 mL	--------- --	ICP-55N-10X-0.5	ICP-55N-10X-20ML	ICP-55N-25X-20ML
$Sr(NO_3)_2$	100 mL	ICP-55N-1	ICP-55N-10X-1		
2-5% Nitric acid	500 mL	ICP-55N-5	ICP-55N-10X-5		
Sulfur *	50 mL	--------- --	ICP-56W-10X-0.5	ICP-56W-10X-20ML	ICP-56W-25X-20ML
$(NH_4)_2SO_4$	100 mL	ICP-56W-1	ICP-56W-10X-1		
Water	500 mL	ICP-56W-5	ICP-56W-10X-5		
Tantalum *	50 mL	--------- --	ICP-57W-10X-0.5	ICP-57W-10X-20ML	ICP-57W-25X-20ML
Ta	100 mL	ICP-57W-1	ICP-57W-10X-1		
Water tr. HF	500 mL	ICP-57W-5	ICP-57W-10X-5		
Tellurium	50 mL	--------- --	ICP-58H-10X-0.5	ICP-58H-10X-20ML	---------- --
Te	100 mL	ICP-58H-1	ICP-58H-10X-1		
20% HCl (min.)	500 mL	ICP-58H-5	ICP-58H-10X-5		
Terbium	50 mL	--------- --	ICP-59N-10X-0.5	ICP-59N-10X-20ML	ICP-59N-25X-20ML
Tb_4O_7	100 mL	ICP-59N-1	ICP-59N-10X-1		
2-5% Nitric acid	500 mL	ICP-59N-5	ICP-59N-10X-5		
Thallium	50 mL	--------- --	ICP-60N-10X-0.5	ICP-60N-10X-20ML	ICP-60N-25X-20ML
Tl	100 mL	ICP-60N-1	ICP-60N-10X-1		
2-5% Nitric acid	500 mL	ICP-60N-5 67	ICP-60N-10X-5		
Thorium		--------- --	---------- --	---------- --	---------- --
$Th(NO_3)4 \cdot 4H_2O$	100 mL	ICP-61N-1			
2-5% Nitric acid	500 mL	ICP-61N-5			
Thulium	50 mL	--------- --	ICP-62N-10X-0.5	ICP-62N-10X-20ML	ICP-62N-25X-20ML
Tm_2O_3	100 mL	ICP-62N-1	ICP-62N-10X-1		
2-5% Nitric acid	500 mL	ICP-62N-5	ICP-62N-10X-5		

Single Element ICP

NoHaz 20 mL Size (No Hazardous shipping charge)

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	20 mL (NoHaz) 10,000 µg/mL Cat. No.	20 mL (NoHaz) 25,000 µg/mL Cat. No.
Tin	50 mL	--------- --	ICP-63N-10X-0.5	ICP-63N-10X-20ML	ICP-63N-25X-20ML
Sn	100 mL	ICP-63N-1	ICP-63N-10X-1		
2-5% Nitric acid tr. HF	500 mL	ICP-63N-5	ICP-63N-10X-5		
Titanium *	50 mL	--------- --	ICP-64W-10X-0.5	---------- --	---------- --
$(NH_4)_2TiF_6$	100 mL	ICP-64W-1	ICP-64W-10X-1		
Water tr. HF	500 mL	ICP-64W-5	ICP-64W-10X-5		
Tungsten *	50 mL	--------- --	ICP-65W-10X-0.5	ICP-65W-10X-20ML	---------- --
$(NH_4)_2WO_4$	100 mL	ICP-65W-1	ICP-65W-10X-1		
Water tr. NH_4OH	500 mL	ICP-65W-5	ICP-65W-10X-5		
Uranium	-----	--------- --	---------- --	---------- --	---------- --
U_3O_8	100 mL	ICP-66N-1			
2-5% Nitric acid	500 mL	ICP-66N-5			
Vanadium	50 mL	--------- --	ICP-67N-10X-0.5	ICP-67N-10X-20ML	ICP-67N-25X-20ML
NH_4VO_3	100 mL	ICP-67N-1	ICP-67N-10X-1		
2-5% Nitric acid	500 mL	ICP-67N-5	ICP-67N-10X-5		
Ytterbium	50 mL	--------- --	ICP-68N-10X-0.5	ICP-68N-10X-20ML	ICP-68N-25X-20ML
Yb_2O_3	100 mL	ICP-68N-1	ICP-68N-10X-1		
2-5% Nitric acid	500 mL	ICP-68N-5	ICP-68N-10X-5		
Yttrium	50 mL	--------- --	ICP-69N-10X-0.5	ICP-69N-10X-20ML	ICP-69N-25X-20ML
Y_2O_3	100 mL	ICP-69N-1	ICP-69N-10X-1		
2-5% Nitric acid	500 mL	ICP-69N-5	ICP-69N-10X-5		
Zinc	50 mL	--------- --	ICP-70N-10X-0.5	ICP-70N-10X-20ML	ICP-70N-25X-20ML
Zn	100 mL	ICP-70N-1	ICP-70N-10X-1		
2-5% Nitric acid	500 mL	ICP-70N-5	ICP-70N-10X-5		
Zirconium	50 mL	--------- --	ICP-71N-10X-0.5	ICP-71N-10X-20ML	ICP-71N-25X-20ML
$ZrO(NO_3)_2$	100 mL	ICP-71N-1	ICP-71N-10X-1		
2-5% Nitric acid	500 mL	ICP-71N-5	ICP-71N-10X-5		

Calibration and Matrix Blanks

Nitric Acid Blank

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

5% HNO_3 in ASTM Type I Water

Hydrochloric Acid Blank

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

5% HCl in ASTM Type I Water

Mixed Acid Blank

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

5% HCl + 1% HNO_3 in ASTM Type I Water

Water Blank

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

ASTM Type I Water

AccuStandard's 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 FLPE containers to provide required protection and, of course, all standards are traceable to the National Institute of Standards and Technology (NIST) weights and Reference Materials.

- Ultra Pure Starting Materials
- Traceable to NIST Reference Materials
- 36 Month Shelf Life
- Special Packaging

Over 25 New Elements

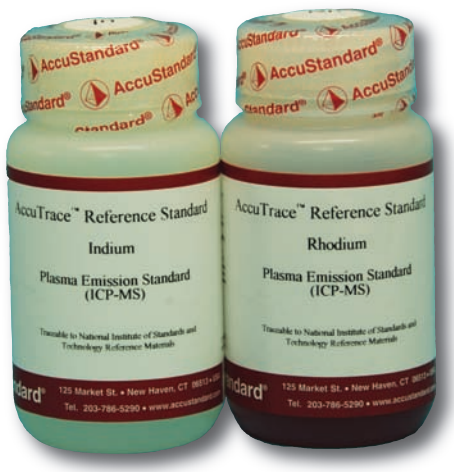
Single Element ICP/MS

Element	Matrix	Unit	100 µg/mL Cat. No.	1,000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
Al (Aluminum)	2-5% HNO_3	100 mL	ICP-MS-01N-0.01X-1	ICP-MS-01N-0.1X-1	ICP-MS-01N-1
Sb (Antimony)	2-5% HNO_3	100 mL	ICP-MS-02N-0.01X-1	ICP-MS-02N-0.1X-1	ICP-MS-02N-1
As (Arsenic)	2-5% HNO_3	100 mL	ICP-MS-03N-0.01X-1	ICP-MS-03N-0.1X-1	ICP-MS-03N-1
Ba (Barium)	2-5% HNO_3	100 mL	ICP-MS-04N-0.01X-1	ICP-MS-04N-0.1X-1	ICP-MS-04N-1
Be (Beryllium)	2-5% HNO_3	100 mL	ICP-MS-05N-0.01X-1	ICP-MS-05N-0.1X-1	ICP-MS-05N-1
Bi (Bismuth)	2-10% HNO_3	100 mL	ICP-MS-06N-0.01X-1	ICP-MS-06N-0.1X-1	ICP-MS-06N-1
B (Boron) *	H_2O tr. NH_4OH	100 mL	ICP-MS-07W-0.01X-1	ICP-MS-07W-0.1X-1	ICP-MS-07W-1
Cd (Cadmium)	2-5% HNO_3	100 mL	ICP-MS-08N-0.01X-1	ICP-MS-08N-0.1X-1	ICP-MS-08N-1
Ca (Calcium)	2-5% HNO_3	100 mL	ICP-MS-09N-0.01X-1	ICP-MS-09N-0.1X-1	ICP-MS-09N-1
Ce (Cerium)	2-5% HNO_3	100 mL	ICP-MS-11N-0.01X-1	ICP-MS-11N-0.1X-1	ICP-MS-11N-1
Cs (Cesium)	2-5% HNO_3	100 mL	ICP-MS-12N-0.01X-1	ICP-MS-12N-0.1X-1	ICP-MS-12N-1
Cr (Chromium)	2-5% HNO_3	100 mL	ICP-MS-13N-0.01X-1	ICP-MS-13N-0.1X-1	ICP-MS-13N-1
Co (Cobalt)	2-5% HNO_3	100 mL	ICP-MS-14N-0.01X-1	ICP-MS-14N-0.1X-1	ICP-MS-14N-1
Cu (Copper)	2-5% HNO_3	100 mL	ICP-MS-15N-0.01X-1	ICP-MS-15N-0.1X-1	ICP-MS-15N-1
Dy (Dysprosium)	2-5% HNO_3	100 mL	ICP-MS-16N-0.01X-1	ICP-MS-16N-0.1X-1	ICP-MS-16N-1
Er (Erbium)	2-5% HNO_3	100 mL	ICP-MS-17N-0.01X-1	ICP-MS-17N-0.1X-1	ICP-MS-17N-1
Eu (Europium)	2-5% HNO_3	100 mL	ICP-MS-18N-0.01X-1	ICP-MS-18N-0.1X-1	ICP-MS-18N-1
Gd (Gadolinium)	2-5% HNO_3	100 mL	ICP-MS-19N-0.01X-1	ICP-MS-19N-0.1X-1	ICP-MS-19N-1
Ga (Gallium)	2-5% HNO_3	100 mL	ICP-MS-20N-0.01X-1	ICP-MS-20N-0.1X-1	ICP-MS-20N-1
Ge (Germanium) *	H_2O tr. HF	100 mL	ICP-MS-21W-0.01X-1	ICP-MS-21W-0.1X-1	ICP-MS-21W-1
Au (Gold)	10% HCl	100 mL	ICP-MS-22H-0.01X-1	ICP-MS-22H-0.1X-1	ICP-MS-22H-1
Hf (Hafnium)	2-5% HNO_3 tr. HF	100 mL	ICP-MS-23N-0.01X-1	ICP-MS-23N-0.1X-1	ICP-MS-23N-1
Ho (Holmium)	2-5% HNO_3	100 mL	ICP-MS-24N-0.01X-1	ICP-MS-24N-0.1X-1	ICP-MS-24N-1
In (Indium)	2-5% HNO_3	100 mL	ICP-MS-25N-0.01X-1	ICP-MS-25N-0.1X-1	ICP-MS-25N-1
Ir (Iridium)	10% HCl	100 mL	ICP-MS-26H-0.01X-1	ICP-MS-26H-0.1X-1	ICP-MS-26H-1
Fe (Iron)	2-5% HNO_3	100 mL	ICP-MS-27N-0.01X-1	ICP-MS-27N-0.1X-1	ICP-MS-27N-1
La (Lanthanum)	2-5% HNO_3	100 mL	ICP-MS-28N-0.01X-1	ICP-MS-28N-0.1X-1	ICP-MS-28N-1
Pb (Lead)	2-5% HNO_3	100 mL	ICP-MS-29N-0.01X-1	ICP-MS-29N-0.1X-1	ICP-MS-29N-1
Li (Lithium)	2-5% HNO_3	100 mL	ICP-MS-30N-0.01X-1	ICP-MS-30N-0.1X-1	ICP-MS-30N-1
Lu (Lutetium)	2-5% HNO_3	100 mL	ICP-MS-31N-0.01X-1	ICP-MS-31N-0.1X-1	ICP-MS-31N-1
Mg (Magnesium)	2-5% HNO_3	100 mL	ICP-MS-32N-0.01X-1	ICP-MS-32N-0.1X-1	ICP-MS-32N-1
Mn (Manganese)	2-5% HNO_3	100 mL	ICP-MS-33N-0.01X-1	ICP-MS-33N-0.1X-1	ICP-MS-33N-1
Hg (Mercury)	10% HNO_3	100 mL	ICP-MS-34N-0.01X-1	ICP-MS-34N-0.1X-1	ICP-MS-34N-1
Mo (Molybdenum) *	H_2O tr. NH_4OH	100 mL	ICP-MS-35W-0.01X-1	ICP-MS-35W-0.1X-1	ICP-MS-35W-1
Nd (Neodymium) *	2-5% HNO_3	100 mL	ICP-MS-36N-0.01X-1	ICP-MS-36N-0.1X-1	ICP-MS-36N-1
Ni (Nickel)	2-5% HNO_3	100 mL	ICP-MS-37N-0.01X-1	ICP-MS-37N-0.1X-1	ICP-MS-37N-1
Nb (Niobium)	H_2O tr. HF	100 mL	ICP-MS-38W-0.01X-1	ICP-MS-38W-0.1X-1	ICP-MS-38W-1
Pd (Palladium)	10% HCl	100 mL	ICP-MS-40H-0.01X-1	ICP-MS-40H-0.1X-1	ICP-MS-40H-1
P (Phosphorous) *	H_2O	100 mL	ICP-MS-41W-0.01X-1	ICP-MS-41W-0.1X-1	ICP-MS-41W-1
Pt (Platinum)	10% HCl	100 mL	ICP-MS-42H-0.01X-1	ICP-MS-42H-0.1X-1	ICP-MS-42H-1
K (Potassium)	2-5% HNO_3	100 mL	ICP-MS-43N-0.01X-1	ICP-MS-43N-0.1X-1	ICP-MS-43N-1
Pr (Praseodymium)	2-5% HNO_3	100 mL	ICP-MS-44N-0.01X-1	ICP-MS-44N-0.1X-1	ICP-MS-44N-1
Re (Rhenium) *	H_2O tr. HNO_3	100 mL	ICP-MS-45W-0.01X-1	ICP-MS-45W-0.1X-1	ICP-MS-45W-1
Rh (Rhodium)	10% HCl	100 mL	ICP-MS-46H-0.01X-1	ICP-MS-46H-0.1X-1	ICP-MS-46H-1
Rb (Rubidium)	2-5% HNO_3	100 mL	ICP-MS-47N-0.01X-1	ICP-MS-47N-0.1X-1	ICP-MS-47N-1
Ru (Ruthenium)	10% HCl	100 mL	ICP-MS-48H-0.01X-1	ICP-MS-48H-0.1X-1	ICP-MS-48H-1
Sm (Samarium)	2-5% HNO_3	100 mL	ICP-MS-49N-0.01X-1	ICP-MS-49N-0.1X-1	ICP-MS-49N-1
Sc (Scandium)	2-5% HNO_3	100 mL	ICP-MS-50N-0.01X-1	ICP-MS-50N-0.1X-1	ICP-MS-50N-1
Se (Selenium)	2-5% HNO_3	100 mL	ICP-MS-51N-0.01X-1	ICP-MS-51N-0.1X-1	ICP-MS-51N-1
Si (Silicon) *	H_2O tr. HF	100 mL	ICP-MS-52W-0.01X-1	ICP-MS-52W-0.1X-1	ICP-MS-52W-1

These products require a Hazardous Shipping Fee, <u>except</u> products marked with an asterisk *

Single Element ICP/MS

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



AA

Single Element

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. Actual Lot Analysis is provided on the label and a Certificate of Analysis is included for ease of record keeping and availability at audits.

- Traceable to NIST Reference Materials
- Certificate of Analysis included
- Actual Concentration Analysis
- High Purity Starting Materials and Acids
- 18 megohm de-ionized Water
- 36 Month Shelf Life

NoHaz Option with Most ICP & AA Single Element Standards

SAVINGS:

- No Hazardous Shipping Fees
- Lower Shipping Costs (less weight)
- Yields More – 500 mL from 20 mL concentrate
- Includes empty pre-washed, pre-labeled HDPE bottle

(250 mL for 10,000 µg/mL; 500 mL for 25,000 µg/mL)

Single Element AAs require a Hazardous Shipping Fee, except the "NoHaz™" products in the right columns, and except elements marked with an asterisk *

Haz Fees

Single Element AA			NoHaz Size (No Hazardous shipping charge)	
Element Starting Material Matrix	**Unit**	**1000 µg/mL** **Cat. No.**	**20 mL (NoHaz)** **10,000 µg/mL** **Cat. No.**	**20 mL (NoHaz)** **25,000 µg/mL** **Cat. No.**
Aluminum	100 mL	AA01N-1	AA01N-10X-20ML	AA01N-25X-20ML
2-5% Nitric acid	500 mL	AA01N-5		
Antimony	100 mL	AA02N-1	AA02W-10X-20ML	---------- --
2-5% HNO_3 tr.Tartaric acid	500 mL	AA02N-5		
Arsenic	100 mL	AA03N-1	AA03N-10X-20ML	AA03N-25X-20ML
2-5% Nitric acid	500 mL	AA03N-5		
Barium	100 mL	AA04N-1	AA04N-10X-20ML	AA04N-25X-20ML
2-5% Nitric acid	500 mL	AA04N-5		
Beryllium	100 mL	AA05N-1	AA05N-10X-20ML	---------- --
2-5% Nitric acid	500 mL	AA05N-5		
Bismuth	100 mL	AA06N-1	AA06N-10X-20ML	AA06N-25X-20ML
10% Nitric acid	500 mL	AA06N-5		
Boron *	100 mL	AA07W-1	AA07W-10X-20ML	---------- --
Water tr. NH_4OH	500 mL	AA07W-5		
Cadmium	100 mL	AA08N-1	AA08N-10X-20ML	AA08N-25X-20ML
2-5% Nitric acid	500 mL	AA08N-5		
Calcium	100 mL	AA09N-1	AA09N-10X-20ML	AA09N-25X-20ML
2-5% Nitric acid	500 mL	AA09N-5		
Cerium	100 mL	AA11N-1	AA11N-10X-20ML	AA11N-25X-20ML
2-5% Nitric acid	500 mL	AA11N-5		
Cesium	100 mL	AA12N-1	AA12N-10X-20ML	AA12N-25X-20ML
2-5% Nitric acid	500 mL	AA12N-5		
Chromium	100 mL	AA13N-1	AA13N-10X-20ML	AA13N-25X-20ML
2-5% Nitric acid	500 mL	AA13N-5		
Cobalt	100 mL	AA14N-1	AA14N-10X-20ML	AA14N-25X-20ML
2-5% Nitric acid	500 mL	AA14N-5		
Copper	100 mL	AA15N-1	AA15N-10X-20ML	AA15N-25X-20ML
2-5% Nitric acid	500 mL	AA15N-5		
Dysprosium	100 mL	AA16N-1	AA16N-10X-20ML	AA16N-25X-20ML
2-5% Nitric acid	500 mL	AA16N-5		
Erbium	100 mL	AA17N-1	AA17N-10X-20ML	AA17N-25X-20ML
2-5% Nitric acid	500 mL	AA17N-5		
Europium	100 mL	AA18N-1	AA18N-10X-20ML	AA18N-25X-20ML
2-5% Nitric acid	500 mL	AA18N-5		
Gadolinium	100 mL	AA19N-1	AA19N-10X-20ML	AA19N-25X-20ML
2-5% Nitric acid	500 mL	AA19N-5		
Gallium	100 mL	AA20N-1	AA20N-10X-20ML	---------- --
2-5% Nitric acid	500 mL	AA20N-5		
Germanium *	100 mL	AA21W-1	AA21W-10X-20ML	---------- --
Water tr. HF	500 mL	AA21W-5		

AA

Single Element

Single Element AAs require a Hazardous Shipping Fee, except the "NoHaz™" products in the right columns, and except elements marked with an asterisk *

Haz Fees

Single Element AA			NoHaz Size (No Hazardous shipping charge)	
Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	20 mL (NoHaz) 10,000 µg/mL Cat. No.	20 mL (NoHaz) 25,000 µg/mL Cat. No.
Gold	100 mL	AA22H-1	AA22H-10X-20ML	AA22H-25X-20ML
5% HCl (min.)	500 mL	AA22H-5		
Hafnium	100 mL	AA23N-1	AA23N-10X-20ML	AA23N-25X-20ML
2-5% Nitric acid tr. HF	500 mL	AA23N-5		
Holmium	100 mL	AA24N-1	AA24N-10X-20ML	AA24N-25X-20ML
2-5% Nitric acid	500 mL	AA24N-5		
Indium	100 mL	AA25N-1	AA25N-10X-20ML	AA25N-25X-20ML
2-5% Nitric acid	500 mL	AA25N-5		
Iridium	100 mL	AA26H-1	AA26H-10X-20ML	AA26H-25X-20ML
10% HCl (min.)	500 mL	AA26H-5		
Iron	100 mL	AA27N-1	AA27N-10X-20ML	AA27N-25X-20ML
2-5% Nitric acid	500 mL	AA27N-5		
Lanthanum	100 mL	AA28N-1	AA28N-10X-20ML	AA28N-25X-20ML
2-5% Nitric acid	500 mL	AA28N-5		
Lead	100 mL	AA29N-1	AA29N-10X-20ML	AA29N-25X-20ML
2-5% Nitric acid	500 mL	AA29N-5		
Lithium	100 mL	AA30N-1	AA30N-10X-20ML	AA30N-25X-20ML
2-5% Nitric acid	500 mL	AA30N-5		
Lutetium	100 mL	AA31N-1	AA31N-10X-20ML	AA31N-25X-20ML
2-5% Nitric acid	500 mL	AA31N-5		
Magnesium	100 mL	AA32N-1	AA32N-10X-20ML	AA32N-25X-20ML
2-5% Nitric acid	500 mL	AA32N-5		
Manganese	100 mL	AA33N-1	AA33N-10X-20ML	AA33N-25X-20ML
2-5% Nitric acid	500 mL	AA33N-5		
Mercury	100 mL	AA34N-1	AA34N-10X-20ML	AA34N-25X-20ML
2-5% Nitric acid	500 mL	AA34N-5		
Molybdenum *	100 mL	AA35W-1	AA35W-10X-20ML	AA35W-25X-20ML
Water tr. NH_4OH	500 mL	AA35W-5		
Neodymium	100 mL	AA36N-1	AA36N-10X-20ML	AA36N-25X-20ML
2-5% Nitric acid	500 mL	AA36N-5		
Nickel	100 mL	AA37N-1	AA37N-10X-20ML	AA37N-25X-20ML
2-5% Nitric acid	500 mL	AA37N-5		
Niobium *	100 mL	AA38W-1	AA38W-10X-20ML	AA38W-25X-20ML
Water tr. HF	500 mL	AA38W-5		
Palladium	100 mL	AA40H-1	AA40H-10X-20ML	AA40H-25X-20ML
10% HCl (min.)	500 mL	AA40H-5		
Phosphorus *	100 mL	AA41W-1	AA41W-10X-20ML	---------- --
Water	500 mL	AA41W-5		
Platinum	100 mL	AA42H-1	AA42H-10X-20ML	AA42H-25X-20ML
2% HCl (min.)	500 mL	AA42H-5		
Potassium	100 mL	AA43N-1	AA43N-10X-20ML	AA43N-25X-20ML
2-5% Nitric acid	500 mL	AA43N-5		
Praseodymium	100 mL	AA44N-1	AA44N-10X-20ML	AA44N-25X-20ML
2-5% Nitric acid	500 mL	AA44N-5		
Rhenium *	100 mL	AA45W-1	AA45W-10X-20ML	AA45W-25X-20ML
Water	500 mL	AA45W-5		
Rhodium	100 mL	AA46H-1	AA46H-10X-20ML	AA46H-25X-20ML
10% HCl (min.)	500 mL	AA46H-5		
Rubidium	100 mL	AA47N-1	AA47N-10X-20ML	AA47N-25X-20ML
2-5% Nitric acid	500 mL	AA47N-5		
Ruthenium	100 mL	AA48H-1	AA48H-10X-20ML	AA48H-25X-20ML
10% HCl	500 mL	AA48H-5		
Samarium	100 mL	AA49N-1	AA49N-10X-20ML	AA49N-25X-20ML
2-5% Nitric acid	500 mL	AA49N-5		
Scandium	100 mL	AA50N-1	AA50N-10X-20ML	AA50N-25X-20ML
2-5% Nitric acid	500 mL	AA50N-5		

- Traceable to NIST Reference Materials
- Certificate of Analysis included
- Actual Concentration Analysis
- High Purity Starting Materials and Acids
- 18 megohm de-ionized Water
- 36 Month Shelf Life

Single Element AAs require a Hazardous Shipping Fee, except the "NoHaz™" products in the right columns, and except elements marked with an asterisk *

Haz Fees

Single Element AA

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	NoHaz Size (No Hazardous shipping charge) 20 mL (NoHaz) 10,000 µg/mL Cat. No.	20 mL (NoHaz) 25,000 µg/mL Cat. No.
Selenium	100 mL	AA51N-1	AA51N-10X-20ML	AA51N-25X-20ML
2-5% Nitric acid	500 mL	AA51N-5		
Silicon *	100 mL	AA52W-1	AA52W-10X-20ML	---------- --
Water tr. HF	500 mL	AA52W-5		
Silver	100 mL	AA53N-1	AA53N-10X-20ML	AA53N-25X-20ML
2-5% Nitric acid	500 mL	AA53N-5		
Sodium	100 mL	AA54N-1	AA54N-10X-20ML	AA54N-25X-20ML
2-5% Nitric acid	500 mL	AA54N-5		
Strontium	100 mL	AA55N-1	AA55N-10X-20ML	AA55N-25X-20ML
2-5% Nitric acid	500 mL	AA55N-5		
Sulfur *	100 mL	AA56W-1	AA56W-10X-20ML	AA56W-25X-20ML
Water	500 mL	AA56W-5		
Tantalum *	100 mL	AA57W-1	AA57W-10X-20ML	AA57W-25X-20ML
Water tr. HF	500 mL	AA57W-5		
Tellurium	100 mL	AA58H-1	AA58H-10X-20ML	---------- --
10% HCl (min.)	500 mL	AA58H-5		
Terbium	100 mL	AA59N-1	AA59N-10X-20ML	AA59N-25X-20ML
2-5% Nitric acid	500 mL	AA59N-5		
Thallium	100 mL	AA60N-1	AA60N-10X-20ML	AA60N-25X-20ML
2-5% Nitric acid	500 mL	AA60N-5		
Thorium	100 mL	AA61N-1	---------- --	---------- --
2-5% Nitric acid	500 mL	AA61N-5		
Thulium	100 mL	AA62N-1	AA62N-10X-20ML	AA62N-25X-20ML
2-5% Nitric acid	500 mL	AA62N-5		
Tin	100 mL	AA63N-1	AA63N-10X-20ML	AA63N-25X-20ML
2-5% Nitric acid tr. HF	500 mL	AA63N-5		
Titanium *	100 mL	AA64W-1	AA64W-10X-20ML	---------- --
Water tr. HF	500 mL	AA64W-5		
Tungsten *	100 mL	AA65W-1	AA65W-10X-20ML	---------- --
Water tr. NH_4OH	500 mL	AA65W-5		
Uranium	100 mL	AA66N-1	---------- --	---------- --
2-5% Nitric acid	500 mL	AA66N-5		
Vanadium	100 mL	AA67N-1	AA67N-10X-20ML	AA67N-25X-20ML
5-10% Nitric acid	500 mL	AA67N-5		
Ytterbium	100 mL	AA68N-1	AA68N-10X-20ML	AA68N-25X-20ML
2-5% Nitric acid	500 mL	AA68N-5		
Yttrium	100 mL	AA69N-1	AA69N-10X-20ML	AA69N-25X-20ML
2-5% Nitric acid	500 mL	AA69N-5		
Zinc	100 mL	AA70N-1	AA70N-10X-20ML	AA70N-25X-20ML
2-5% Nitric acid	500 mL	AA70N-5		
Zirconium	100 mL	AA71N-1	AA71N-10X-20ML	AA71N-25X-20ML
2-5% Nitric acid	500 mL	AA71N-5		

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	Unit	Cat. No.
Ammonium dihydrogen phosphate 40% in H_2O	$NH_4H_2PO_4$	50 mL	MOD-02-0.5
		100 mL	MOD-02-1
		500 mL	MOD-02-5
Ammonium nitrate 5% in H_2O	NH_4NO_3	50 mL	MOD-03-0.5
		100 mL	MOD-03-1
		500 mL	MOD-03-5
Calcium nitrate 2% in 5% in HNO_3	$Ca(NO_3)_2 \bullet 4H_2O$	50 mL	MOD-04-0.5
		100 mL	MOD-04-1
		500 mL	MOD-04-5
Lanthanum chloride 5% in 5% HCl	LaCl	50 mL	MOD-05-0.5
		100 mL	MOD-05-1
		500 mL	MOD-05-5
Lanthanum nitrate 5% in 5% HNO_3	$LaNO_3$	50 mL	MOD-06-0.5
		100 mL	MOD-06-1
		500 mL	MOD-06-5
Magnesium nitrate 2% in 5% HNO_3	$Mg(NO_3)_2$	50 mL	MOD-07-0.5
		100 mL	MOD-07-1
		500 mL	MOD-07-5
Nickel nitrate 5% in 5% HNO_3	$Ni(NO_3)_2$	50 mL	MOD-08-0.5
		100 mL	MOD-08-1
		500 mL	MOD-08-5
Palladium nitrate 0.2% in 5% HNO_3	$Pd(NO_3)_2$	50 mL	MOD-09A-0.5
		100 mL	MOD-09A-1
		500 mL	MOD-09A-5
Palladium nitrate 0.5% in 5% HNO_3	$Pd(NO_3)_2$	50 mL	MOD-09B-0.5
		100 mL	MOD-09B-1
		500 mL	MOD-09B-5
Palladium nitrate 1.0% in 5% HNO_3	$Pd(NO_3)_2$	50 mL	MOD-09C-0.5
		100 mL	MOD-09C-1
		500 mL	MOD-09C-5

Calibration and Matrix Blanks

Nitric Acid Blank

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

5% HNO_3 in ASTM Type I Water

Hydrochloric Acid Blank

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

5% HCl in ASTM Type I Water

Water Blank

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

ASTM Type I Water

Mixed Acid Blank

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

5% HCl + 1% HNO_3 in ASTM Type I Water

Multi-Element Graphite Furnace AA Calibration & Spiking Standards

GFAA Instrument Calibration Standard

CLP-CAL-AA **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Sb (Antimony)	100
As (Arsenic)	50
Cd (Cadmium)	10
Pb (Lead)	50
Se (Selenium)	100
Tl (Thallium)	50

GFAA Mercury Standard

for Calibration or Spiking
CLP-HG-AA **50 mL**
100 µg/mL in 5% HNO_3

Hg (Mercury)

GFAA Predigestion Spike Solution

CLP-SP1-AA **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Sb (Antimony)	100
As (Arsenic)	40
Cd (Cadmium)	5
Pb (Lead)	20
Se (Selenium)	10
Tl (Thallium)	50

GFAA Postdigestion Spike Solution

(2 x CRDL except for Lead)
CLP-SP2-AA **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Sb (Antimony)	120
As (Arsenic)	20
Cd (Cadmium)	10
Pb (Lead)	20
Se (Selenium)	10
Tl (Thallium)	20

GFAA Initial Calibration Verification

(Meets CLP Second Source Requirements)
CLP-ICV-AA **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Sb (Antimony)	50
As (Arsenic)	25
Cd (Cadmium)	5
Pb (Lead)	25
Se (Selenium)	50
Tl (Thallium)	25

GFAA Set

CLP-AA-SET **5 x 50 mL**

CLP-CAL-AA
CLP-SPI-AA
CLP-ICV-AA
CLP-HG-AA
CLP-SP2-AA

These products require a Hazardous Shipping Fee, <u>except</u> products marked with an asterisk *

- 99.99% High Purity Starting Materials
- 18 Megohm, ASTM type I de-ionized Water
- Packaged in pre-cleaned high quality HDPE bottles.
- Each Standard is Supplied with a Certificate of Analysis, stating traceability to NIST, certified value and expiration date.
- 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.
- Ready-To-Use Mixes and Calibration Sets.
- Standards may be used for other "Classical or Wet" methods.

Anions

Water Matrix	Unit	100 µg/mL Cat. No.	200 µg/mL Cat. No.	1000 µg/mL Cat. No.
■ Acetate	100 mL	IC-ACET-1X-1	----------	IC-ACET-10X-1
	500 mL	IC-ACET-1X-5	----------	IC-ACET-10X-5
Br (Bromate) ***NEW***	100 mL	----------	----------	IC-BROM-10X-1
	500 mL	----------	----------	IC-BROM-10X-5
Br (Bromide)	100 mL	IC-BR-1X-1	IC-BR-2X-1	IC-BR-10X-1
	500 mL	IC-BR-1X-5	IC-BR-2X-5	IC-BR-10X-5
■ Chlorate	100 mL	IC-CHLR-1X-1	----------	IC-CHLR-10X-1
	500 mL	IC-CHLR-1X-5	----------	IC-CHLR-10X-5
Citrate ***NEW***	100 mL	----------	----------	IC-CITR-10X-1
Cl (Chloride)	100 mL	IC-Cl-1X-1	IC-Cl-2X-1	IC-Cl-10X-1
	500 mL	IC-Cl-1X-5	IC-Cl-2X-5	IC-Cl-10X-5
■ Chromate	100 mL	IC-CHRM-1X-1	----------	IC-CHRM-10X-1
	500 mL	IC-CHRM-1X-5	----------	IC-CHRM-10X-5
F (Fluoride)	100 mL	IC-F-1X-1	IC-F-2X-1	IC-F-10X-1
	500 mL	IC-F-1X-5	IC-F-2X-5	IC-F-10X-5
■ Formate	100 mL	IC-FORM-1X-1	----------	IC-FORM-10X-1
	500 mL	IC-FORM-1X-5	----------	IC-FORM-10X-5
Glycolate ***NEW***	100 mL	----------	----------	IC-GLYC-10X-1
Iodide	100 mL	----------	----------	IC-I-10X-1
Lactate ***NEW***	100 mL	----------	----------	IC-LACT-10X-1
Malate ***NEW***	100 mL	----------	----------	IC-MALA-10X-1
Maleate ***NEW***	100 mL	----------	----------	IC-MALE-10X-1
NO_2 (Nitrite)	100 mL	IC-NO2-1X-1	IC-NO2-2X-1	IC-NO2-10X-1
	500 mL	IC-NO2-1X-5	IC-NO2-2X-5	IC-NO2-10X-5
NO_3 (Nitrate)	100 mL	IC-NO3-1X-1	IC-NO3-2X-1	IC-NO3-10X-1
	500 mL	IC-NO3-1X-5	IC-NO3-2X-5	IC-NO3-10X-5
■ Oxalate	100 mL	IC-OXAL-1X-1	----------	IC-OXAL-10X-1
	500 mL	IC-OXAL-1X-5	----------	IC-OXAL-10X-5
Perchlorate ***NEW***	100 mL	----------	----------	IC-PER-10X-1
Phthalate ***NEW***	100 mL	----------	----------	IC-PHTH-10X-1
PO_4 (Phosphate)	100 mL	IC-PO4-1X-1	IC-PO4-2X-1	IC-PO4-10X-1
	500 mL	IC-PO4-1X-5	IC-PO4-2X-5	IC-PO4-10X-5
Propionate ***NEW***	100 mL	----------	----------	IC-PROP-10X-1
Succinate ***NEW***	100 mL	----------	----------	IC-SUCC-10X-1
SO_4 (Sulfate)	100 mL	IC-SO4-1X-1	IC-SO4-2X-1	IC-SO4-10X-1
	500 mL	IC-SO4-1X-5	IC-SO4-2X-5	IC-SO4-10X-5
Tartrate ***NEW***	100 mL	----------	----------	IC-TART-10X-1

■ **Organic Acid Salt Standards**

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
Chloride
Nitrite
Nitrate
Bromide
Phosphate
Sulfate

These products do not require Hazardous Shipping charges at this time

Ion Chrom - Ion Singles as the Element

	Unit	100 µg/mL	1000 µg/mL
NO_2-N (Nitrite-Nitrogen)	100 mL	IC-NO2-N-1X-1	IC-NO2-N-10X-1
Water Matrix	500 mL	IC-NO2-N-1X-5	IC-NO2-N-10X-5
NO_3-N (Nitrate-Nitrogen)	100 mL	IC-NO3-N-1X-1	IC-NO3-N-10X-1
Water Matrix	500 mL	IC-NO3-N-1X-5	IC-NO3-N-10X-5
PO_4-P (Phosphate-Phosphorous)	100 mL	IC-PO4-P-1X-1	IC-PO4-P-10X-1
Water Matrix	500 mL	IC-PO4-P-1X-5	IC-PO4-P-10X-5
SO_4-S (Sulfate-Sulfur)	100 mL	IC-SO4-S-1X-1	IC-SO4-S-10X-1
Water Matrix	500 mL	IC-SO4-S-1X-5	IC-SO4-S-10X-5
NH_4-N (Ammonium-Nitrogen)	100 mL	IC-NH4-N-1X-1	IC-NH4-N-10X-1
Water Matrix	500 mL	IC-NH4-N-1X-5	IC-NH4-N-10X-5

Anion Single Kits

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

Fluoride
Chloride
Nitrite-Nitrogen
Nitrate-Nitrogen
Bromide
Phosphate-Phosphorous
Sulfate-Sulfur

Organic Acid Salt Standard

	Unit	100 µg/mL	1000 µg/mL
Formate	100 mL	IC-FORM-1X-1	IC-FORM-10X-1
Water Matrix	500 mL	IC-FORM-1X-5	IC-FORM-10X-5
Acetate	100 mL	IC-ACET-1X-1	IC-ACET-10X-1
Water Matrix	500 mL	IC-ACET-1X-5	IC-ACET-10X-5
Oxalate	100 mL	IC-OXAL-1X-1	IC-OXAL-10X-1
Water Matrix	500 mL	IC-OXAL-1X-5	IC-OXAL-10X-5
Chlorate	100 mL	IC-CHLR-1X-1	IC-CHLR-10X-1
Water Matrix	500 mL	IC-CHLR-1X-5	IC-CHLR-10X-5
Chromate	100 mL	IC-CHRM-1X-1	IC-CHRM-10X-1
Water Matrix	500 mL	IC-CHRM-1X-5	IC-CHRM-10X-5

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
Sulfate
Carbonate

Conductivity Meter Calibration Standard

M-314.0-CMCS-1 **100 mL**
1410 µs/cm @ 25˚C in Water

Method 314.0 Perchlorate Calibration Set

M-314.0-SET **100 mL**

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

Ion Chrom Eluents

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

Technical Note

Easy to use, 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

These products do not require Hazardous Shipping charges at this time

Anion Mixes

Anion Mix #1
IC-MAN-01-1 — **100 mL**
Water Matrix — 5 comps.

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

Anion Mix #2
IC-MAN-02-1 — **100 mL**
Water Matrix — 6 comps.

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

Anion Mix #3
IC-MAN-03-1 — **100 mL**
Water Matrix — 3 comps.

F (Fluoride)	100 µg/mL
Cl (Chloride)	100 µg/mL
SO_4 (Sulfate)	100 µg/mL

Anion Mix #4
IC-MAN-04-1 — **100 mL**
Water Matrix — 6 comps.

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

Anion Mix #5
IC-MAN-05-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	10 µg/mL
Cl (Chloride)	20 µg/mL
Br (Bromide)	20 µg/mL
NO_3 (Nitrate)	20 µg/mL
PO_4 (Phosphate)	5 µg/mL
SO_4 (Sulfate)	30 µg/mL

Anion Mix #6
IC-MAN-06-R1-1 — **100 mL**
Water Matrix — 6 comps.

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

Technical Note

To enhance the shelf life and long term stability of our IC products, Nitrite has been split out of mixes that contain Nitrate.

Anion Mix #7
IC-MAN-07-R1-1 — **100 mL**
Water Matrix — 6 comps.

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

Anion Mix #8
IC-MAN-08-R1-1 — **100 mL**
Water Matrix — 6 comps.

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

Anion Mix #9
IC-MAN-09-R1-1 — **100 mL**
Water Matrix — 6 comps.

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

Anion Mix #10
IC-MAN-10-R1-1 — **100 mL**
Water Matrix — 6 comps.

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

IC Anion Set
IC-MAN-CAL-SET — **5 units**

Contains one each of:

- CLP-BLW-5 (500 mL)
- IC-MAN-07-R1-1 (100 mL)
- IC-MAN-08-R1-1 (100 mL)
- IC-MAN-09-R1-1 (100 mL)
- IC-MAN-10-R1-1 (100 mL)

Technical Note

This Ready-to-Use set of standards can be used to generate a 5 point calibration curve (including blank)

Technical Note

We offer several Nitrite concentrations that can be added just prior to analysis for maximum stability.

Anion Mix #11
IC-MAN-11-1 — **100 mL**
Water Matrix — 5 comps.

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

Anion Mix #12
IC-MAN-12-1 — **100 mL**
Water Matrix — 5 comps.

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

Anion Mix #13
IC-MAN-13-1 — **100 mL**
Water Matrix — 3 comps.

F (Fluoride)	25 µg/mL
Cl (Chloride)	50 µg/mL
SO_4 (Sulfate)	100 µg/mL

Anion Mix #14
IC-MAN-14-R3-1 — **100 mL**
Water Matrix — 6 comps.

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

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

Anion Mix #14 Revised
IC-MAN-14-R2-1 — **100 mL**
Water Matrix — 6 comps.

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

Technical Note

This "Determination of Inorganic Anions by Ion Chromatography" and **ASTM D-4327**, "Test Method for Anions in Water by Chemically Suppressed Ion Chromatography."

Nitrite

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

Anion Mix #15
IC-MAN-15-R2-1 — **100 mL**
Water Matrix — 3 comps.

F *(Fluoride)*	100 µg/mL
NO_3 *(Nitrate)*	100 µg/mL
PO_4 *(Phosphate)*	100 µg/mL

Anion Mix #16
IC-MAN-16-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	100 µg/mL
Cl (Chloride)	200 µg/mL
Br (Bromide)	100 µg/mL
NO_3 (Nitrate)	20 µg/mL
PO_4 (Phosphate)	30 µg/mL
SO_4 (Sulfate)	20 µg/mL

Anion Mix #17
IC-MAN-17-R1-1 — **100 mL**
Water Matrix — 5 comps.

Cl (Chloride)	20 µg/mL
Br (Bromide)	12 µg/mL
NO_3 (Nitrate)	12 µg/mL
PO_4 (Phosphate)	12 µg/mL
SO_4 (Sulfate)	80 µg/mL

Anion Mix #18
IC-MAN-18-R1-1 — **100 mL**
Water Matrix — 5 comps.

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

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

These products do not require Hazardous Shipping charges at this time

Ion Chrom - Cation Singles

Dilute HNO_3 Matrix	Unit	100 µg/mL Cat. No.	200 µg/mL Cat. No.	1,000 µg/mL Cat. No.
Ca (Calcium)	100 mL	IC-CA-1X-1	IC-CA-2X-1	IC-CA-10X-1
	500 mL	IC-CA-1X-5	IC-CA-2X-5	IC-CA-10X-5
NH_4 (Ammonium)	100 mL	IC-NH4-1X-1	IC-NH4-2X-1	IC-NH4-10X-1 †
	500 mL	IC-NH4-1X-5	IC-NH4-2X-5	IC-NH4-10X-5 †
Mg (Magnesium)	100 mL	IC-MG-1X-1	IC-MG-2X-1	IC-MG-10X-1
	500 mL	IC-MG-1X-5	IC-MG-2X-5	IC-MG-10X-5
K (Potassium)	100 mL	IC-K-1X-1	IC-K-2X-1	IC-K-10X-1
	500 mL	IC-K-1X-5	IC-K-2X-5	IC-K-10X-5
Na (Sodium)	100 mL	IC-NA-1X-1	IC-NA-2X-1	IC-NA-10X-1
	500 mL	IC-NA-1X-5	IC-NA-2X-5	IC-NA-10X-5
Li (Lithium)	100 mL	IC-LI-1X-1	IC-LI-2X-1	IC-LI-10X-1
	500 mL	IC-LI-1X-5	IC-LI-2X-5	IC-LI-10X-5
Ba (Barium)	100 mL	IC-BA-1X-1	IC-BA-2X-1	IC-BA-10X-1
	500 mL	IC-BA-1X-5	IC-BA-2X-5	IC-BA-10X-5
Sr (Strontium)	100 mL	IC-SR-1X-1	IC-SR-2X-1	IC-SR-10X-1
	500 mL	IC-SR-1X-5	IC-SR-2X-5	IC-SR-10X-5
Sets	**8 x 100 mL**	IC-CAT-1X-1-SET	IC-CAT-2X-1-SET	IC-CAT-10X-1-SET
Above Listed	**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
N (Nitrogen) = 776 µg/mL

Ion Chrom - Cation Mixes

Cation Mix #1

IC-MCA-01-1 — **100 mL**
Dilute HNO_3 — 6 comps.

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

Cation Mix #2

IC-MCA-02-1 — **100 mL**
Dilute HNO_3 — 6 comps.

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

Cation Mix #3

IC-MCA-03-1 — **100 mL**
Dilute HNO_3 — 4 comps.

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

Cation Mix #4

IC-MCA-04-1 — **100 mL**
Dilute HNO_3 — 4 comps.

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

Cation Mix #5

IC-MCA-05-1 — **100 mL**
Dilute HNO_3 — 4 comps.

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

Cation Mix #6

IC-MCA-06-1 — **100 mL**
Dilute HNO_3 — 6 comps.

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

These products do not require Hazardous Shipping charges at this time

Wet Chemicals

Our Wet Chemical Line offers Inorganic Chemists the certified standards they need. All of our Wet Chemical standards are subjected to the same rigorous quality control procedures as our ICP and IC standards.

Each Standard is prepared from the highest quality raw material, according to ASTM, EPA or "*Standard Methods*"[1] procedures. All the balances used in the preparation are calibrated regularly versus NIST traceable weights.

Each batch of finished standards is then analyzed to verify concentration, against NIST standards where possible. Finally, each batch is packaged for the maximum stability and shelf life so that you receive the best possible product.

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

Inorganic Non-Metallic Constituents

Many of these methods use classical wet chemical methods to determine the components of either potable or wastewater.

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**
Water Matrix 6 comps.

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

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

Cyanide
WC-CN-10X-1 Δ **100 mL**
1000 µg/mL Cyanide in Water tr. 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

Technical Note
This product is shipped in an amber flame sealed ampule for maximum stability.

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**
pH of 4.0 in Water
WC-PH-7-1 ***NEW*** **100 mL**
pH of 7.0 in Water
WC-PH-10-1 ***NEW*** **100 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

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

Δ Requires a Hazardous Shipping Fee

Physical & Aggregate Properties

These Standards are concerned primarily with measuring actual physical characteristics of a sample as opposed to the chemical characteristics. 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 to make a calibration curve.
Do not shake prior to use.

Alkalinity
WC-ALK-10X-1 **100 mL**
1000 µg/L $CaCO_3$ 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 approximate concentration of 1000 µg/mL $CaCO_3$. Hardness µg/mL equivalent $CaCO_3$ = 2.497 [Ca µg/mL] + 4.118 [Mg µg/mL]

Conductivity
WC-COND-10X-1 **100 mL**
1000 µmhos 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.

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

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

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

Conductivity

WC-COND-10X-1 **100 mL**
1000 µmhos in water

Chemical Oxygen Demand (COD)

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

Total Organic Carbon (TOC)

WC-TOC-10X-1 **100 mL**
1000 µg/mL TOC

Total Organic Halides (TOX)

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

Oil and Grease

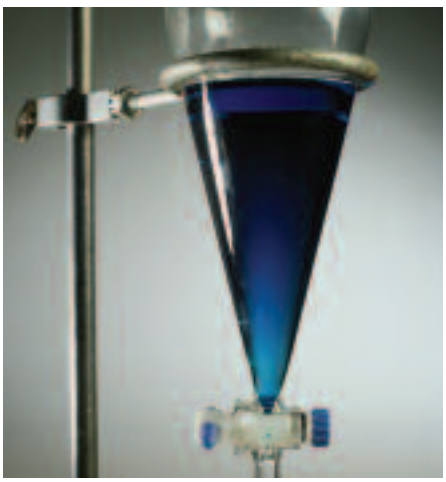
WC-OILG-10X-1 Δ **100 mL**
1000 µg/mL Total Oil and Grease in n-Propanol

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.

Δ Requires a Hazardous Shipping Fee



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.

Hexadecane
Stearic acid

Technical Note

This Precison and Recovery (PAR) Spiking Solution was developed for the 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 conveniently sized for quality control of the analytical batch.

Method 413.2 & 418.1 Total Petroleum Hydrocarbon Analysis by IR

Oil, Grease & Petroleum Hydrocarbon Concentrates Mix

M-418-CON **1 x 1 mL**
% by volume 3 comps.

Chlorobenzene	(25.0)	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**
Total 4.15 mg/mL in Freon 113, (Parts by volume) 3 comps.

Chlorobenzene	(10.0)	Isooctane	(15.0)
n-Hexadecane	(15.0)		

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 conc. in Tetrachloroethene 3 comps.

Chlorobenzene	(0.10 w/w %)	Isooctane	(0.15 w/w %)
n-Hexadecane	(0.15 w/w %)		

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON **1 x 1 mL**
M-8440-CON-PAK *SAVE* **5 x 1 mL**
3 comps.

Chlorobenzene	(25.0 vol %)	Isooctane	(37.5 vol %)
n-Hexadecane	(37.5 vol %)		

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

Standards of Interest

AccuStandard offers the widest selection of Petroleum standards. These TPH oil analysis standards are a sample of the hundreds in our Fuel and Hydrocarbon section.

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials, Water and Acids
- Meets EPA and Customer Applications
- Concentration Verified by Wet Chemical and Instrumental Analysis
- Packaged in Specially prepared Acid Leached Bottles
- Full Documentation

Multi-Element Contents

Quality Control Standards

Quality Control Standards can be used for many different applications. AccuTrace 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.

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

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

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

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

† 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.

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

QC Standard #4

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

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

QC Standard #5

QCS-05-1 **100 mL**
At stated conc. (µg/mL) in 2% HNO_3 3 comps.

Li (Lithium)	250
K (Potassium)	10,000
Na (Sodium)	1000

QC Standard #6

QCS-06-1 **100 mL**
1000 µg/mL each in 2% HNO_3 4 comps.

Ba (Barium)	Mg (Magnesium)
Ca (Calcium)	Sr (Strontium)

Quality Control Standards 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

TRACEABLE AccuTrace Reference Standards CERTIFIED

Second Source QC Standards

These Alternative Source Line Standards exactly match a formulation from another source you may be already using. Our ASL 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 **1 x 100 mL**
QCS-ASL-7-5 **1 x 500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 tr. HF
7 comps.

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

Second Source QC Standard #2

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

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

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

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

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Instrument Check Standards

These instrument check standards are used to verify ICP instrumentation performance over specific wavelength ranges from 160 nm to 790 nm. These standards are ideal for method development, technician training and other calibration uses.

Instrument Check Standard #1

ICS-01-1 **100 mL**
ICS-01-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 9 comps.

Al (Aluminum)	100
Ba (Barium)	10
Be (Beryllium)	10
B (Boron)	100
Ca (Calcium)	10
Ni (Nickel)	100
P (Phosphorus)	1000
Sc (Scandium)	10
Zn (Zinc)	100

Instrument Check Standard #2

ICS-02-1 **100 mL**
ICS-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 7 comps.

Ba (Barium)	50
Be (Beryllium)	20
La (Lanthanum)	20
Mn (Manganese)	20
Ni (Nickel)	20
Sc (Scandium)	20
Zn (Zinc)	20

Instrument Check Standard #3

ICS-03-1 **100 mL**
ICS-03-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF 11 comps.

As (Arsenic)	20
La (Lanthanum)	20
Li (Lithium)	20
Mn (Manganese)	20
Mo (Molybdenum)	20
Ni (Nickel)	20
P (Phosphorus)	100
K (Potassium)	100
Sc (Scandium)	20
Na (Sodium)	20
S (Sulfur)	100

Instrument Check Standard #4

ICS-04-1 **100 mL**
ICS-04-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 12 comps.

Al (Aluminum)	100
As (Arsenic)	100
Ba (Barium)	10
Cu (Copper)	100
Pb (Lead)	100
Mn (Manganese)	100
Ni (Nickel)	100
P (Phosphorus)	100
K (Potassium)	500
Sc (Scandium)	100
Na (Sodium)	100
Zn (Zinc)	100

Instrument Check Standard #5

ICS-05-1 **100 mL**
ICS-05-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 15 comps.

Al (Aluminum)	100
As (Arsenic)	100
Cd (Cadmium)	100
Cr (Chromium)	100
Co (Cobalt)	100
Cu (Copper)	100
Fe (Iron)	100
Pb (Lead)	100
Mg (Magnesium)	100
Mn (Manganese)	100
Ni (Nickel)	100
K (Potassium)	100
Na (Sodium)	100
Y (Yttrium)	600
Zn (Zinc)	100

Instrument Check Standard #6

ICS-06-1 **100 mL**
ICS-06-5 **500 mL**
50 µg/mL each in 2% HNO_3 9 comps.

Al (Aluminum)	Pb (Lead)
As (Arsenic)	P (Phosphorus)
Cr (Chromium)	K (Potassium)
Co (Cobalt)	Na (Sodium)
Cu (Copper)	

Instrument Check Standard #7

ICS-07-1 **100 mL**
ICS-07-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 7 comps.

Al (Aluminum)	50
Ba (Barium)	50
Cd (Cadmium)	50
Cu (Copper)	50
Mn (Manganese)	50
K (Potassium)	500
Zn (Zinc)	50

Screening Standards

These three 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 3 semi-quantitative standards can be blended together and used immediately.

Semi-Quantitative Standard #1

SQS-01-1 **1 x 100 mL**
10 µg/mL each in 2-5% HNO_3 tr. HF 33 comps.

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

Semi-Quantitative Standard #2

SQS-02-1 **1 x 100 mL**
10 µg/mL each in 2-5% HNO_3 tr. HCl tr. HF 34 comps.

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

Semi-Quantitative Standard #3

SQS-03-1 **1 x 100 mL**
10 µg/mL each in 2-5% HNO_3 2 comps.

Hg (Mercury) Ag (Silver)

- **69 Elements in Three Mixes**
- **Economical**
- **Easy to Use**

Technical Note

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

SDWA (Safe Drinking Water Act) Standards

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.

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

Secondary Drinking Water Metals

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

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

Mercury Solution

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

Hg (Mercury)

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.

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

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

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.

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

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.

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

Al (Aluminum)	10
Fe (Iron)	100
Mn (Manganese)	10
Ag (Silver)	10
Zn (Zinc)	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 19 comps.

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

† 214 µg/mL as SiO_2

These products require a Hazardous Shipping Fee except products marked with an asterisk *

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.

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

Trace Metals II

WPTM-02-1 **100 mL**
WPTM-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 3 comps.

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

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

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

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

TCLP Multi-Element Calibration Standards

For use in SW-846, Method 1311 Toxicity Characteristic Leaching Procedure

TCLP Standard #1

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

As (Arsenic)	25
Ba (Barium)	500
Cd (Cadmium)	5
Cr (Chromium)	25
Pb (Lead)	25
Se (Selenium)	5
Ag (Silver)	25

TCLP Standard for ICP

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

Ba (Barium)	500
Cd (Cadmium)	5
Cr (Chromium)	25
Ag (Silver)	25

TCLP Standard for GFAA

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

As (Arsenic)	25
Pb (Lead)	25
Se (Selenium)	5

TCLP Standard #2

For Mercury Analysis using ICP or Cold Vapor AA
TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Hg (Mercury)

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.

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

MISA Standard 2
Precious Metals

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

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

MISA Standard 3
Tellurium

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

- Te (Tellurium)

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

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

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

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.

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

MISA Standard 6
Transition Metals

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

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

Calibration and Matrix Blanks

Nitric Acid Blank

CLP-BLN-5 — **500 mL**
CLP-BLN-L-SET — **L (2 x 500 mL)**

5% HNO_3 in ASTM Type I Water

Water Blank

CLP-BLW-5 * — **500 mL**
CLP-BLW-L-SET * — **L (2 x 500 mL)**

ASTM Type I Water

Hydrochloric Acid Blank

CLP-BLH-5 — **500 mL**
CLP-BLH-L-SET — **L (2 x 500 mL)**

5% HCl in ASTM Type I Water

Mixed Acid Blank

CLP-BLMA-5 — **500 mL**
CLP-BLMA-L-SET — **L (2 x 500 mL)**

5% HCl + 1% HNO_3 in ASTM Type I Water

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Calibration Check Standards

Calibration Standard #1

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

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

Calibration Standard #2

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

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

CLP Calibration Standard Set

CLP-CAL-1-SET **7 x 100 mL**

CLP-CAL-01	CLP-CAL-05
CLP-CAL-02	CLP-CAL-06
CLP-CAL-03	CLP-CAL-07
CLP-CAL-04	

Calibration Standard #3

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

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

Calibration Standard #4

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

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

Calibration Standard #5

CLP-CAL-05-1 **100 mL**
600 µg/mL in 2% HNO_3

Sb (Antimony)

Calibration Standard #6

CLP-CAL-06-1 **100 mL**
100 µg/mL in 5% HNO_3

Hg (Mercury)

Calibration Standard #7

CLP-CAL-07-1 * **100 mL**
500 µg/mL each in 5% HNO_3 tr. HF 3 comps.

B (Boron)	Si (Silicon)
Mo (Molybdenum)	

Calibration and Matrix Blanks

Nitric Acid Blank

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

5% HNO_3 in ASTM Type I Water

Water Blank

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

ASTM Type I Water

Hydrochloric Acid Blank

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

5% HCl in ASTM Type I Water

Mixed Acid Blank

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

5% HCl + 1% HNO_3 in ASTM Type I Water

Technical Note

D5600 Ready-to-Aspirate Standards
AccuStandard has formulated the following stock standards for ASTM Method D5600. We have prepared numerous **Ready-to-Aspirate** ICP multi-element solutions. Should your company want to eliminate the preparation process for Inorganic standards contact our Technical Department for a quote on a **Ready-to-Aspirate** working level Inorganic standard.

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 22 comps.

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

Initial & Continuing Calibration Verification Sets

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

CLP-ICV-01-1	CLP-CCV-02-1
CLP-CCV-01-1	CLP-CCV-03-1

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

CLP-ICV-01-5	CLP-CCV-02-5
CLP-CCV-01-5	CLP-CCV-03-5

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 22 comps.

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

Technical Note

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

Initial & Continuing Calibration Revised Verification Sets

CLP-VER-R-1-SET **4 x 100 mL**

CLP-ICV-01-R-1	CLP-CCV-02-1
CLP-CCV-01-1	CLP-CCV-03-1

CLP-VER-R-5-SET **4 x 500 mL**

CLP-ICV-01-R-5	CLP-CCV-02-5
CLP-CCV-01-5	CLP-CCV-03-5

Continuing Calibration Verification

(Meets CLP QA Second Source Requirements)
CLP-CCV-01-1 **100 mL**
CLP-CCV-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Al (Aluminum)	1000
Ba (Barium)	1000
Be (Beryllium)	25
Ca (Calcium)	2500
Cr (Chromium)	50
Co (Cobalt)	250
Cu (Copper)	125
Fe (Iron)	500
Mg (Magnesium)	2500
Mn (Manganese)	75
Ni (Nickel)	200
K (Potassium)	2500
Ag (Silver)	50
Na (Sodium)	2500
V (Vanadium)	250
Zn (Zinc)	100

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

As (Arsenic)	50
Cd (Cadmium)	25
Pb (Lead)	25
Se (Selenium)	25
Tl (Thallium)	50

CLP-CCV-03-1 **100 mL**
CLP-CCV-03-5 **500 mL**
300 µg/mL in 2% HNO_3

Sb (Antimony)

Continuing Calibration Verification Standard Sets

CLP-CCV-1-SET **3 x 100 mL**

CLP-CCV-01-1	CLP-CCV-03-1
CLP-CCV-02-1	

CLP-CCV-5-SET **3 x 500 mL**

CLP-CCV-01-5	CLP-CCV-03-5
CLP-CCV-02-5	

Spiking Standards

Spiking Solution

CLP-SPS-01-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 18 comps.

Al (Aluminum)	200
Sb (Antimony)	50
As (Arsenic)	200
Ba (Barium)	200
Be (Beryllium)	5
Cd (Cadmium)	5
Cr (Chromium)	20
Co (Cobalt)	50
Cu (Copper)	25
Fe (Iron)	100
Pb (Lead)	50
Mn (Manganese)	50
Ni (Nickel)	50
Se (Selenium)	200
Ag (Silver)	5
Tl (Thallium)	200
V (Vanadium)	50
Zn (Zinc)	50

CLP Soil Spiking Solution

CLP-SPS-02-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Sb (Antimony)	100
As (Arsenic)	400
Ba (Barium)	400
Be (Beryllium)	10
Cd (Cadmium)	10
Cr (Chromium)	40
Co (Cobalt)	100
Cu (Copper)	50
Pb (Lead)	100
Mn (Manganese)	100
Ni (Nickel)	100
Se (Selenium)	400
Ag (Silver)	10
Tl (Thallium)	400
V (Vanadium)	100
Zn (Zinc)	100

Technical Note

Spiking solution CLP-SPS-01 can be used for both aqueous and solid samples. An additional spiking solution for soil as outlined in CLP SOW ILM03.0 is also available, CLP-SPS-02.

CLP Spiking Set

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

CLP-SPS-01-1	
CLP-SPS-02-1	

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Interference Check & Analyte Standards

The common interferents checked for by 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.

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

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

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

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.

Al (Aluminum)	100
Sb (Antimony)	100
As (Arsenic)	100
B (Boron)	100
Ca (Calcium)	10
Fe (Iron)	10
Mg (Magnesium)	10
Mo (Molybdenum)	100
Se (Selenium)	100
Si (Silicon)	10
Na (Sodium)	100
Tl (Thallium)	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 15 comps.

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

Contract Required Detection Limits (CRDL) Set

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

CLP-CRDL-01
CLP-CRDL-02

Technical Note

These standards are prepared to meet the requirements of the CLP protocol; Arsenic (As), Lead (Pb), Selenium (Se) and Thallium (Tl) are at a concentration of 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 15 comps.

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

Technical Note

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

SW-846, Method 200.7 & 6010 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.

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

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

Complete 6010B, Rev. 2, 1996 Calibration Set

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		

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.

As (Arsenic)	500
Mo (Molybdenum)	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.

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

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 the 1996 Revision 2.

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.

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

Mixed Calibration Standard 6R

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

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

† 214 µg/mL as SiO_2

Mercury Standard

Mercury is available in a separate solution due to its incompatibility with other elements.

TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Hg (Mercury)

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.

Sb (Antimony)	50
As (Arsenic)	100
Ba (Barium)	10
B (Boron)	20
Cd (Cadmium)	20
Ca (Calcium)	100
Cu (Copper)	20
Mn (Manganese)	20
Se (Selenium)	50
Ag (Silver)	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 6 comps.

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

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

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.

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

† 214 µg/mL as SiO_2

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.

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

Mixed Calibration Standards Sets

M-200.7-1-R-SET **5 x 100 mL**

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

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

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

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Method 200.7 Instrument Performance Standards

Instrument Performance Check Standard #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.

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

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

† 214 µg/mL as SiO_2

Method 200.7 Performance Check, Fortifying Solution & Mercury Standard

Laboratory Performance Check Standard

For use in demonstrating the initial and continuing verification of the calibration curves produced 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.

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

† 214 µg/mL as SiO_2

Laboratory Fortifying Stock Solution

For 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.

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

† 53.5 µg/mL as SiO_2

Technical Note

The analytes Ca, K, Mg, and Na are not included in the stock solution because their concentrations vary widely in environmental samples.

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

Hg (Mercury)

Method 200.7 Fortifying (Spiking & Instrument Performance Standards)

These Standards have been split for stability and ease of use. Choose the Instrument Fortifying Standard you require for Part 1 & use with Part 2 to complete the analyte list. For Lab Fortified Blank use M-200.7-LFSS-01, for Water Samples use M-200.7-LFSS-01W, and for Solid Samples use M-200.7-LFSS-01S.

Part 1

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 26 comps.

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

Instrument Fortifying Standard for Water

M-200.7-LFSS-01W-1 **100 mL**
M-200.7-LFSS-01W-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

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

Instrument Fortifying Standard for Solids

M-200.7-LFSS-01S-1 **100 mL**
M-200.7-LFSS-01S-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 24 comps.

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

Part 2

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.

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

† 42.78 µg/mL as SiO_2

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Method 200.7 Spiking Solutions for Drinking Water

Spiking Standard #1R

M-200.7-SP-01-R * **50 mL**
At stated conc. (µg/mL) in H_2O tr. HF 4 comps.

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

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

Spiking Standard #3

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

Al (Aluminum)	2000
Ba (Barium)	2000
Be (Beryllium)	50
Cr (Chromium)	200
Co (Cobalt)	500
Cu (Copper)	250
Fe (Iron)	1000
Mn (Manganese)	500
Ni (Nickel)	500
Ag (Silver)	50
V (Vanadium)	500
Zn (Zinc)	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-04-R
M-200.7-SP-02-R	M-200.7-SP-05-R
M-200.7-SP-03	

Spiking Standard #4R

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

Sb (Antimony)

Spiking Standard #5R

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

As (Arsenic)	200
Cd (Cadmium)	100
Pb (Lead)	200
Se (Selenium)	400
Tl (Thallium)	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 2% HNO_3 tr. HF

Mo (Molybdenum)

Check Solutions Sets

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

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

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

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

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.

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

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

Since everyone experiences different interference problems in their analysis, it is often easiest to design standards to match the "real world" samples. Below is a set of single element standards that can be used for making these standards in your lab.

Spectral Interference Check Set

Single Elements

SIC-SING-1-SET **9 x 100 mL**
Each at 1,000 µg/mL in HNO_3

Al (Aluminum)	Mn (Manganese)
Cr (Chromium)	Mo (Molybdenum)
Co (Cobalt)	Ni (Nickel)
Cu (Copper)	V (Vanadium)
Fe (Iron)	

Method 6010B (Revision 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.

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

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

Complete 6010B, Rev. 2, 1996 Calibration Set

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		

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.

As (Arsenic)	500
Mo (Molybdenum)	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.

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

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 the 1996 Revision 2.

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.

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

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

† 214 µg/mL as SiO_2

Mercury Standard

Mercury is available in a separate solution due to its incompatibility with other elements.

TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Hg (Mercury)

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.

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

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.

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

Al (Aluminum)	Ag (Silver)
Ba (Barium)	Na (Sodium)
B (Boron)	
K (Potassium)	† 214 µg/mL as
Si (Silicon) †	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

Hg (Mercury)

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Method 6010B (Revision 2 from SW-846, Dec. 1996) Performance and 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.

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

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

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

Interference Set

Because interference problems are dependent on the types of sample matrices encountered - it is often easier to create your own set of matrix matching interference check solutions. Therefore, we are offering a set of single element solutions to be used for that purpose.

SIC-SING-R-1-SET **set of 10 x 100 mL**
10 individual single element standards at 1,000 µg/mL in HNO_3

Al (Aluminum)	Mg (Magnesium)
Ca (Calcium)	Mn (Manganese)
Cr (Chromium)	Ni (Nickel)
Cu (Copper)	Ti (Titanium)
Fe (Iron)	V (Vanadium)

Technical Note

If you would like us to formulate an interference check solution to meet your needs, please call our Technical Service Department for a custom quotation.

Set-up Solutions

Nebulizer Adjustment Solution

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

Y (Yttrium)

Method 6010 (Revision 0, Sept. 1986) Interference Check Standards

Four standard mixtures are available for interference checks in SW-846, Method 6010 (Rev. 0, Sept. 1986) and Method 200.7.

Interference Check Standard #1

INT-01-1 **100 mL**
INT-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 17 comps.

As (Arsenic)	1000
Ba (Barium)	300
Be (Beryllium)	100
Cd (Cadmium)	300
Cr (Chromium)	300
Co (Cobalt)	300
Cu (Copper)	300
Pb (Lead)	1000
Mn (Manganese)	200
Hg (Mercury)	50
Ni (Nickel)	300
K (Potassium)	20,000
Se (Selenium)	500
Ag (Silver)	300
Tl (Thallium)	1000
V (Vanadium)	300
Zn (Zinc)	300

Interference Check Standard #2

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

B (Boron)	500
Mo (Molybdenum)	300
Si (Silicon)	200
Ti (Titanium)	1000

Interference Check Standard #3

INT-03-1 * **100 mL**
INT-03-5 * **500 mL**
500 µg/mL in 2% HNO_3, tr. Tartaric acid

Sb (Antimony)

Interference Check Standard #4

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

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

Interference Check Standards Sets

INT-1986-1-SET **4 x 100 mL**

INT-01-1	INT-03-1
INT-02-1	INT-04-1

INT-1986-5-SET **4 x 500 mL**

INT-01-5	INT-03-5
INT-02-5	INT-04-5

TCLP Multi-Element Calibration Standards

For use in SW-846, Method 1311 Toxicity Characteristic Leaching Procedure

TCLP Standard #1

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

As (Arsenic)	25
Ba (Barium)	500
Cd (Cadmium)	5
Cr (Chromium)	25
Pb (Lead)	25
Se (Selenium)	5
Ag (Silver)	25

TCLP Standard for ICP

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

Ba (Barium)	500
Cd (Cadmium)	5
Cr (Chromium)	25
Ag (Silver)	25

TCLP Standard for GFAA

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

As (Arsenic)	25
Pb (Lead)	25
Se (Selenium)	5

TCLP Standard #2

For Mercury Analysis using ICP or Cold Vapor AA
TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Hg (Mercury)

AccuStandard leaches its bottles to ensure contaminant-free packaging.

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.

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

Secondary Drinking Water Metals

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

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

Mercury Solution

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

Hg (Mercury)

Set of Drinking Water Standards

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 GFAA

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

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

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 in 2% HNO_3 tr. HF 14 comps.

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

† 214 µg/mL as SiO_2

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% HNO_3 9 comps.

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

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% HNO_3 5 comps.

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

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.

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

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 19 comps.

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

† 214 µg/mL as SiO_2

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AccuStandard has received many requests for the following multi-element standards. We now offer our own version of these popular mixes offered by Merck. Products are made to the same specifications as other mixes in our product line and subject to the same rigorous quality control.

AccuStandard equivalent of Merck Multi-Element Standards

ICP Multi-Element Standard Solution I

MES-01-1 **100 mL**
MES-01-5 **500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 19 comps.

Ag (Silver)	50
Al (Aluminum)	100
B (Boron)	15
Ba (Barium)	5
Be (Beryllium)	1
Bi (Bismuth)	200
Cd (Cadmium)	20
Co (Cobalt)	20
Cr (Chromium)	25
Cu (Copper)	20
Fe (Iron)	15
Ga (Gallium)	150
In (Indium)	200
Mn (Manganese)	5
Ni (Nickel)	50
Pb (Lead)	200
Sr (Strontium)	1
Tl (Thallium)	400
Zn (Zinc)	20

ICP Multi-Element Standard Solution II

MES-02-1 **100 mL**
MES-02-5 **500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 3 comps.

Li (Lithium)	250
K (Potassium)	10,000
Na (Sodium)	1000

ICP Multi-Element Standard Solution III

MES-03-1 **100 mL**
MES-03-5 **500 mL**
1000 µg/mL each in 1 mol/L HNO_3 4 comps.

Ba (Barium)	Mg (Magnesium)
Ca (Calcium)	Sr (Strontium)

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.

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

ICP Multi-Element Standard Solution V

MES-05-1-SET **2x100 mL**
MES-05-5-SET **2x500 mL**
At stated conc. (µg/mL) in 5% HCl 26 comps.

MES-05

K (Potassium)	100
Al (Aluminum)	20
As (Arsenic)	20
Na (Sodium)	20
Pb (Lead)	20
Se (Selenium)	20
Ca (Calcium)	20
P (Phosphorus)	20
Te (Tellurium)	20
Ni (Nickel)	5
B (Boron)	2
Ba (Barium)	2
Cd (Cadmium)	2
Cr (Chromium)	2
Cu (Copper)	2
Fe (Iron)	2
Li (Lithium)	2
Ti (Titanium)	2
Zn (Zinc)	2
Be (Beryllium)	1
Mg (Magnesium)	1
Mn (Manganese)	1
Sc (Scandium)	1
Sr (Strontium)	1
Y (Yttrium)	1

MES-05-HG
5% HNO_3
Hg (Mercury) 5
supplied separately for better stability

ICP Multi-Element Standard Solution VI for MS

MES-06-1-SET **100 mL**
MES-06-5-SET **500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 tr. HF 30 comps.

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

MES-06-TE
Te (Tellurium) 10
supplied separately for better stability in 10% HCl

ICP Multi-Element Standard Solution VII

MES-07-1 * **100 mL**
MES-07-5 * **500 mL**
100 µg/mL each in Water tr. HNO_3 9 comps.

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

ICP Multi-Element Standard Solution VIII

MES-08-1-SET **2x100 mL**
MES-08-5-SET **2x500 mL**
100 µg/mL each in 1 mol/L HNO_3 24 comps.

MES-08

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

MES-08-TE
10% HCl
Te (Tellurium)
supplied separately for better stability

ICP Multi-Element Standard Solution IX

MES-09-1-SET **2x100 mL**
MES-09-5-SET **2x500 mL**
100 µg/mL each in 1 mol/L HNO_3 8 comps.

MES-09

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

MES-09-HG
Hg (Mercury)
supplied separately for better stability.

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AccuStandard equivalent of Merck Multi-Element Standards

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.

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

ICP Multi-Element Standard Solution XI

MES-11-1-SET **2x100 mL**
MES-11-5-SET **2x500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 6 comps.

MES-11

Cd (Cadmium)	10
Cr (Chromium)	900
Cu (Copper)	800
Ni (Nickel)	200
Pb (Lead)	900
Zn (Zinc)	2500

MES-11-HG
Hg (Mercury) 8
supplied separately for better product stability

ICP Multi-Element Standard Solution XII

MES-12-1-SET **2x100 mL**
MES-12-5-SET **2x500 mL**
1000 µg/mL each in 5% HCl tr. HNO_3 7 comps.

MES-12-R1

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

MES-12-ZR
Zr (Zirconium)
supplied separately for better product stability

ICP Multi-Element Standard Solution XIII

MES-13-1-SET **2x100 mL**
MES-13-5-SET **2x500 mL**
At stated conc. (µg/mL) in 5% HNO_3 15 comps.

MES-13

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

MES-13-HG
Hg (Mercury) 5
supplied separately for better stability

ICP Multi-Element Standard Solution XIV

MES-14-1 **100 mL**
MES-14-5 **500 mL**
At stated conc. (µg/mL) in 2% HCl tr. HNO_3 11 comps.

P (Phosphorus)	100
S (Sulfur)	100
K (Potassium)	100
As (Arsenic)	20
La (Lanthanum)	20
Li (Lithium)	20
Mo (Molybdenum)	20
Mn (Manganese)	20
Ni (Nickel)	20
Sc (Scandium)	20
Na (Sodium)	20

ICP Multi-Element Standard Solution XV

MES-15-1 **100 mL**
MES-15-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 8 comps.

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

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.

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

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.

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

ICP Multi-Element GF AAS Standard Solution XVIII

MES-18-1 **100 mL**
MES-18-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

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

ICP Multi-Element Standard Solution XIX for MS

MES-19-1 **100 mL**
MES-19-5 **500 mL**
1 µg/mL each in 1% HNO_3 5 comps.

Be (Beryllium)	Tl (Thallium)
Co (Cobalt)	U (Uranium)
In (Indium)	

ICP Multi-Element Standard Solution XX for MS

MES-20-1 **100 mL**
MES-20-5 **500 mL**
1 µg/mL each in 1% HNO_3 11 comps.

Mg (Magnesium)	Tl (Thallium)
Cu (Copper)	Ce (Cerium)
Cd (Cadmium)	Ge (Germanium)
Pb (Lead)	Tb (Terbium)
Sc (Scandium)	Ba (Barium)
Rh (Rhodium)	

ICP Multi-Element Standard Solution XXI for MS

MES-21-1-SET **2x100 mL**
MES-21-5-SET **2x500 mL**
10 µg/mL each in 5% HNO_3 30 comps.

MES-21	
Ag (Silver)	In (Indium)
Al (Aluminum)	K (Potassium)
As (Arsenic)	Li (Lithium)
Ba (Barium)	Mg (Magnesium)
Be (Beryllium)	Mn (Manganese)
Bi (Bismuth)	Na (Sodium)
Ca (Calcium)	Ni (Nickel)
Cd (Cadmium)	Pb (Lead)
Co (Cobalt)	Rb (Rubidium)
Cr (Chromium)	Se (Selenium)
Cs (Cesium)	Sr (Strontium)
Cu (Copper)	Tl (Thallium)
Fe (Iron)	V (Vanadium)
Ga (Gallium)	U (Uranium)
	Zn (Zinc)

MES-21-HG
Hg (Mercury) 10
supplied separately for better product stability

ICP Multi-Element Standard Solution XXII for MS

MES-22-1 **100 mL**
MES-22-5 **500 mL**
2 µg/mL each in 2% HNO_3 5 comps.

Cd (Cadmium)	Pb (Lead)
Cu (Copper)	Rh (Rhodium)
Mg (Magnesium)	

AccuStandard is now offering calibration and testing standards for individual instruments. The Alternate Source Line (ASL) formulations match product from:

■ Varian ■ Agilent ■ JY (Jobin Yvon) ■ Perkin Elmer (PE) ■ Teledyne (Leeman Labs)

All of these products have been carefully formulated to be used for specific instrument setup and verification.

NEW

AccuStandard equivalent of Varian Calibration Solutions

Varian ICP Wavelength Calibration Solution

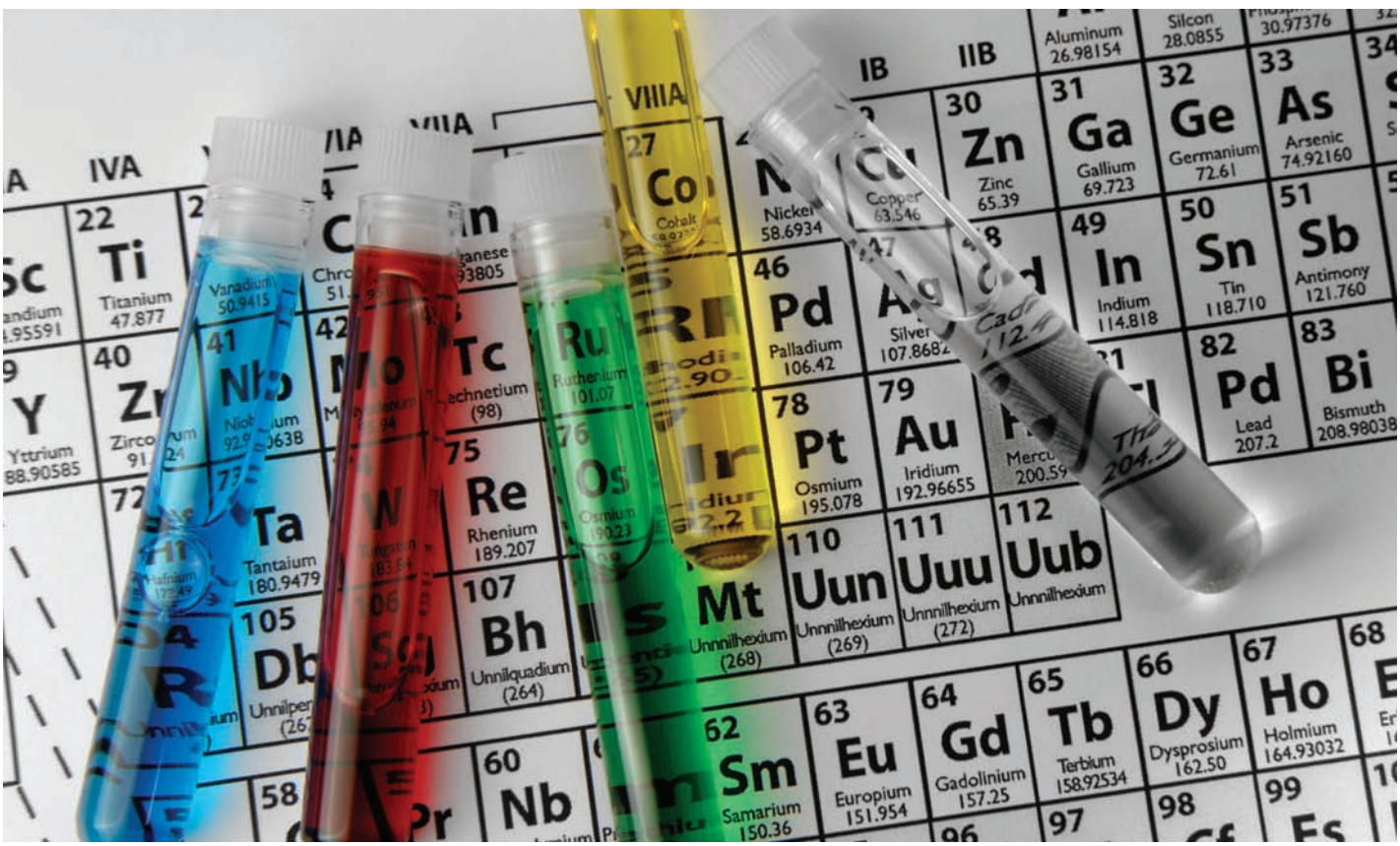
WAVE-CAL-1 **100 mL**
WAVE-CAL-5 **500 mL**
WAVE-CAL-10X-1 **100 mL**
WAVE-CAL-10X-5 **500 mL**
At stated conc. (µg/mL) in 1% HNO_3 15 comps.

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

Varian ICP OES Calibration Solution

WAVE-CAL2-1 **100 mL**
WAVE-CAL2-5 **500 mL**
WAVE-CAL2-10X-1 **100 mL**
WAVE-CAL2-10X-5 **500 mL**
At stated conc. (µg/mL) in 1% HNO_3 14 comps.

	CAL2	CAL2-10X
Al (Aluminum)	5	50
As (Arsenic)	5	50
Ba (Barium)	5	50
Cd (Cadmium)	5	50
Co (Cobalt)	5	50
Cr (Chromium)	5	50
Cu (Copper)	5	50
Mo (Molybdenum)	5	50
Ni (Nickel)	5	50
Pb (Lead)	5	50
Sr (Strontium)	5	50
P (Phosphorus)	5	50
Zn (Zinc)	5	50
K (Potassium)	50	500



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AccuStandard equivalent of Agilent Solutions

NEW

Environmental Calibration Standard

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

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

Environmental Initial Calibration Verification

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

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

Interference Check 6020 #1

AG-INTFR-6020-ASL-1 **100 mL**
AG-INTFR-6020-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 12 comps.

Cl (Chloride)	20,000
Ca (Calcium)	3000
Fe (Iron)	2500
Na (Sodium)	2500
C (Carbon)	2000
Al (Aluminum)	1000
Mg (Magnesium)	1000
P (Phosphorus)	1000
K (Potassium)	1000
S (Sulfur)	1000
Mo (Molybdenum)	20
Ti (Titanium)	20

Interference Check 6020 #2

AG-INTFR2-6020-ASL-1 **/ 100 mL**
AG-INTFR2-6020-ASL-5 **/ 500 mL**
At stated conc. (µg/mL) in 5% HNO_3 11 comps.

Cr (Chromium)	20
Co (Cobalt)	20
Cu (Copper)	20
Mn (Manganese)	20
Ni (Nickel)	20
V (Vanadium)	20
As (Arsenic)	10
Cd (Cadmium)	10
Se (Selenium)	10
Zn (Zinc)	10
Ag (Silver)	5

Environmental Spike Mix

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

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

Environmental Internal Standard

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

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

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.

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

Multi-Element Calibration Std.#2A

AG-MECAL2-ASL-1 **100 mL**
AG-MECAL2-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 25 comps.

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

Multi-Element Calibration Std. #3

AG-MECAL3-ASL-1 **100 mL**
AG-MECAL3-ASL-5 **500 mL**
10 µg/mL each in 10% HCl 10 comps.

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

Multi-Element Calibration Std. #4

AG-MECAL4-ASL-1 * **100 mL**
AG-MECAL4-ASL-5 * **500 mL**
10 µg/mL each in Water, tr. HF 12 comps.

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

AccuStandard equivalent of Jobin Yvon (JY)

NEW

Instrument Calibration Standard Heavy Metals

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

As (Arsenic)	100
Tl (Thallium)	100
Cd (Cadmium)	50
Se (Selenium)	50
Pb (Lead)	30

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.

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

Instrument Check Standard

JY-CHK-ASL-1 **100 mL**
JY-CHK-ASL-5 **500 mL**
50 µg/mL each in 2-5% HNO_3 9 comps.

Al (Aluminum)	K (Potassium)
As (Arsenic)	Na (Sodium)
Co (Cobalt)	P (Phosphorus)
Cr (Chromium)	Pb (Lead)
Cu (Copper)	

Instrument Check Standard 1

JY-CHK1-ASL-1 **100 mL**
JY-CHK1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

K (Potassium)	1500
Pb (Lead)	1000
Al (Aluminum)	500
Mg (Magnesium)	500
Cd (Cadmium)	100

Quality Control Standard 7

JY-QC7-ASL-1 **100 mL**
JY-QC7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 7 comps.

K (Potassium)	1000
Si (Silicon)	500
Al (Aluminum)	100
As (Arsenic)	100
Ba (Barium)	100
Na (Sodium)	100
Ag (Silver)	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.

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

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.

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

AccuStandard equivalent of Perkin Elmer (PE)

NEW

Alternate Interferents A

PE-ALTINTA-ASL-1 **100 mL**
PE-ALTINTA-ASL-5 **500 mL**
1000 µg/mL each in 5% HNO_3 6 comps.

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

Analytes B

PE-ANAB-ASL-1 **100 mL**
PE-ANAB-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF, tr. Tartaric acid 14 comps.

Cd (Cadmium)	100
Ni (Nickel)	100
Zn (Zinc)	100
Sb (Antimony)	60
Ba (Barium)	50
Be (Beryllium)	50
Co (Cobalt)	50
Cr (Chromium)	50
Cu (Copper)	50
Mn (Manganese)	50
V (Vanadium)	50
Ag (Silver)	20
As (Arsenic)	10
Tl (Thallium)	10

Alternate Analytes B

PE-ALTB-ASL-1 **100 mL**
PE-ALTB-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF, tr. Tartaric acid 12 comps.

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

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AccuStandard equivalent of Perkin Elmer (PE)

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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.

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

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.

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

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.

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

Initial Calibration Verification Std.

PE-CRDL1-ASL-1 **100 mL**
PE-CRDL1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. Tartaric acid 21 comps.

Ca (Calcium)	5000
Mg (Magnesium)	5000
K (Potassium)	5000
Na (Sodium)	5000
Ba (Barium)	200
Al (Aluminum)	200
Fe (Iron)	100
Sb (Antimony)	60
Co (Cobalt)	50
V (Vanadium)	50
Ni (Nickel)	40
Cu (Copper)	25
Zn (Zinc)	20
Mn (Manganese)	15
As (Arsenic)	10
Cr (Chromium)	10
Ag (Silver)	10
Tl (Thallium)	10
Cd (Cadmium)	5
Se (Selenium)	5
Pb (Lead)	3

Supplied as a 10X concentration for better stability.

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.

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

Instrument Calibration Std. 2

PE-CAL5-ASL-1 **100 mL**
PE-CAL5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

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

Instrument Calibration Std. 3

PE-CAL6-ASL-1 **100 mL**
PE-CAL6-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

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

Instrument Calibration Std. 4

PE-CAL7-ASL-1 **100 mL**
PE-CAL7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

As (Arsenic)	100
Tl (Thallium)	100
Cd (Cadmium)	50
Se (Selenium)	50
Pb (Lead)	30

Detection Limit

PE-CRDL2-ASL-1 **100 mL**
PE-CRDL2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF tr. Tartaric acid 15 comps.

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

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.

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

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.

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

Instrument Check Standard 4

PE-CHK4-ASL-1 **100 mL**
PE-CHK4-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 3 comps.

Mo (Molybdenum)	U (Uranium)
Th (Thorium)	

Instrument Check Standard 5

PE-CHK5-ASL-1 **100 mL**
PE-CHK5-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 tr. HF 4 comps.

Mo (Molybdenum)	Sr (Strontium)
Sn (Tin)	Tl (Thallium)

Detection Limit Standard for use with the ELAN 5000

PE-CRDL3-ASL-1 **100 mL**
PE-CRDL3-ASL-5 **500 mL**
1 µg/mL each in 1% HNO_3 5 comps.

Be (Beryllium)	Tl (Thallium)
Co (Cobalt)	U (Uranium)
In (Indium)	

Supplied as a 100X concentration for better stability.

AccuStandard equivalent of Perkin Elmer (PE)

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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.

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

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

PE-ICS18-HG-ASL
100 µg/mL in 5% HNO_3

Hg (Mercury)

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 5-10% HNO_3 7 comps.

Li6 (Lithium)	In (Indium)
Sc (Scandium)	Tb (Terbium)
Ge (Germanium)	Bi (Bismuth)
Y(Yttrium)	

Interferents A

PE-INTA-ASL-1 **100 mL**
PE-INTA-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

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

Interferents Check Solution 1

PE-INTFR1-ASL-1 **100 mL**
PE-INTFR1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 12 comps.

Cl (Chloride)	10000
C (Calcium)	2000
Al (Aluminum)	100
Ca (Calcium)	100
Fe (Iron)	100
K (Potassium)	100
Mg (Magnesium)	100
Na (Sodium)	100
P (Phosphorus)	100
S (Sulfur)	100
Mo (Molybdenum)	20
Ti (Titanium)	20

Interference Check Solution 2

PE-INTFR2-ASL-1 **100 mL**
PE-INTFR2-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 9 comps.

Ag (Silver)	Cu (Copper)
As (Arsenic)	Mn (Manganese)
Cd (Cadmium)	Ni (Nickel)
Co (Cobalt)	Zn (Zinc)
Cr (Chromium)	

Interference Check Standard A

PE-INTFRA-ASL-1 **100 mL**
PE-INTFRA-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 12 comps.

Cl (Chloride)	21215
Ca (Calcium)	3000
Na (Sodium)	2500
Fe (Iron)	2500
C (Carbon)	2000
Al (Aluminum)	1000
K (Potassium)	1000
Mg (Magnesium)	1000
P (Phosphorus)	1000
S (Sulfur)	1000
Mo (Molybdenum)	20
Ti (Titanium)	20

Interference Check Standard B

PE-INTFRB-ASL-1 **100 mL**
PE-INTFRB-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 11 comps.

Co (Cobalt)	20
Cr (Chromium)	20
Cu (Copper)	20
Mn (Manganese)	20
Ni (Nickel)	20
V (Vanadium)	20
As (Arsenic)	10
Cd (Cadmium)	10
Se (Selenium)	10
Zn (Zinc)	10
Ag (Silver)	5

Interference Check Standard C

PE-INTFRC-ASL-1-SET **2 x 100 mL**
PE-INTFRC-ASL-5-SET **2 x 500 mL**
2 µg/mL each in 2% HNO_3 tr. HF tr. Tartaric acid 16 comps.

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

PE-INTFRC-HG-ASL
2 µg/mL in 5% HNO_3

Hg (Mercury)

Supplied separately for better product stability.

These products require a Hazardous Shipping Fee except products marked with an asterisk *

AccuStandard equivalent of Perkin Elmer (PE)

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Mixed Calibration Standard

PE-MCS-ASL-1 **100 mL**
PE-MCS-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 10 comps.

As (Arsenic)	50
K (Potassium)	50
La (Lanthanum)	10
Li (Lithium)	10
Mn (Manganese)	10
Ni (Nickel)	10
Sr (Strontium)	10
Zn (Zinc)	10
Ba (Barium)	1
Mg (Magnesium)	1

Mixed Calibration Standard 1

PE-MCS1-ASL-1 **100 mL**
PE-MCS1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 6 comps.

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

Mixed Calibration Standard 2

PE-MCS2-ASL-1 **100 mL**
PE-MCS2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Fe (Iron)	10000
Ba (Barium)	100
Co (Cobalt)	100
Cu (Copper)	100
V (Vanadium)	100

Mixed Calibration Standard 3

PE-MCS3-ASL-1 **100 mL**
PE-MCS3-ASL-5 **500 mL**
at stated conc. (µg/mL) in 2% HNO_3 tr. HF 3 comps.

As (Arsenic)	500
Mo (Molybdenum)	100
Si (Silicon)	100

Mixed Calibration Standard 4

PE-MCS4-ASL-1 **100 mL**
PE-MCS4-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Ca (Calcium)	1000
K (Potassium)	400
Al (Aluminum)	200
Na (Sodium)	200
Cr (Chromium)	20
Ni (Nickel)	20

Mixed Calibration Standard 5

PE-MCS5-ASL-1 **100 mL**
PE-MCS5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF tr. Tartaric acid 5 comps.

Mg (Magnesium)	1000
Sb (Antimony)	200
Tl (Thallium)	200
B (Boron)	100
Ag (Silver)	50

Multi-Element Calibration Standard 1

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

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

Multi-Element Calibration Standard 2

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

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

Multi-Element Calibration Standard 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.

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

PE-MECAL3-HG-ASL
10 µg/mL in 5% HNO_3

Hg (Mercury)

Supplied separately for better product stability.

Multi-Element Calibration Standard 4

PE-MECAL4-ASL-1 **100 mL**
PE-MECAL4-ASL-5 **500 mL**
10 µg/mL each in 10% HCl 10 comps.

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

Multi-Element Calibration Standard 5

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

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

Multi-Element Internal Standard

PE-MEINT-ASL-1 **100 mL**
PE-MEINT-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 7 comps.

Bi (Bismuth)	Sc (Scandium)
Ho (Holmium)	Tb (Terbium)
In (Indium)	Y(Yttrium)
Li6 (Lithium)	

Memory Test 1

PE-MEM1-ASL-1 **100 mL**
PE-MEM1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 21 comps.

Al (Aluminum)	1000
Ca (Calcium)	1000
Fe (Iron)	1000
K (Potassium)	1000
Mg (Magnesium)	1000
Na (Sodium)	1000
Ag (Silver)	20
As (Arsenic)	20
Ba (Barium)	20
Be (Beryllium)	20
Cd (Cadmium)	20
Co (Cobalt)	20
Cr (Chromium)	20
Cu (Copper)	20
Mn (Manganese)	20
Ni (Nickel)	20
Pb (Lead)	20
Se (Selenium)	20
Tl (Thallium)	20
V (Vanadium)	20
Zn (Zinc)	20

Memory Test 2

PE-MEM2-ASL-1 * **100 mL**
PE-MEM2-ASL-5 * **500 mL**
At stated conc. (µg/mL) in Water, tr. HF 6 comps.

Cl (Chloride)	7200
C (Carbon)	2000
P (Phosphorus)	1000
Mo (Molybdenum)	20
Sb (Antimony)	20
Tl (Thallium)	20

AccuStandard is not affiliated with the companies and brands on this page, and the brands and company names appear for the purpose of cross reference with the corresponding AccuStandard product which is being offered.

AccuStandard equivalent of Perkin Elmer (PE)

NEW

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.

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

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

Primary Drinking Water Metals

PE-SDWA1-ASL-1-SET **2 x 100 mL**
PE-SDWA1-ASL-5-SET **2 x 500 mL**

PE-SDWA1-ASL
At stated conc. (µg/mL) in 2% HNO_3 7 comps.

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

PE-SDWA1-HG-ASL
10 µg/mL in 2% HNO_3

Hg (Mercury)

Supplied separately for better product stability.

Secondary Drinking Water Metals

PE-SDWA2-ASL-1 **100 mL**
PE-SDWA2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

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

ELAN 5000 Plasma Setup Solution

PE-SETUP-ASL-1 **100 mL**
PE-SETUP-ASL-5 **500 mL**
1 µg/mL each in 1% HNO_3 11 comps.

Ba (Barium)
Cd (Cadmium)
Ce (Cerium)
Cu (Copper)
Ge (Germanium)
Pb (Lead)
Mg (Magnesium)
Rh (Rhodium)
Sc (Scandium)
Tb (Terbium)
Tl (Thallium)

Supplied as a 100X concentration for better stability.

ELAN 9000/6X00 Dual Detector Calibration Solution

PE-SETUP1-ASL-1 **100 mL**
PE-SETUP1-ASL-5 **500 mL**
2 µg/mL each in 1% HNO_3 5 comps.

Cd (Cadmium)
Cu (Copper)
Pb (Lead)
Mg (Magnesium)
Rh (Rhodium)

Supplied as a 10X concentration for better stability.

ELAN 6000/5000 Plasma Setup Solution

PE-SETUP2-ASL-1 **100 mL**
PE-SETUP2-ASL-5 **500 mL**
1 µg/mL each in 2% HNO_3 11 comps.

Ba (Barium)
Cd (Cadmium)
Ce (Cerium)
Cu (Copper)
Ge (Germanium)
Pb (Lead)
Mg (Magnesium)
Rh (Rhodium)
Sc (Scandium)
Tb (Terbium)
Tl (Thallium)

Supplied as a 100X concentration for better stability.

Spike Sample Analysis

PE-SPIKE-ASL-1 **100 mL**
PE-SPIKE-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF, tr. Tartaric acid 18 comps.

Al (Aluminum)	200
As (Arsenic)	200
Ba (Barium)	200
Se (Selenium)	200
Tl (Thallium)	200
Fe (Iron)	100
Co (Cobalt)	50
Mn (Manganese)	50
Ni (Nickel)	50
Pb (Lead)	50
Sb (Antimony)	50
V (Vanadium)	50
Zn (Zinc)	50
Cu (Copper)	25
Cr (Chromium)	20
Ag (Silver)	5
Be (Beryllium)	5
Cd (Cadmium)	5

Spike Sample Standard I (Water)

PE-SPIKE1-ASL-1 **100 mL**
PE-SPIKE1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF, tr. Tartaric acid 17 comps.

Fe (Iron)	500
Ba (Barium)	250
Zn (Zinc)	250
Co (Cobalt)	100
Cr (Chromium)	100
Cu (Copper)	100
Mn (Manganese)	100
Ni (Nickel)	100
Sb (Antimony)	100
V (Vanadium)	100
As (Arsenic)	50
Pb (Lead)	50
Ag (Silver)	25
Be (Beryllium)	25
Cd (Cadmium)	25
Se (Selenium)	25
Tl (Thallium)	25

Spike Sample Standard II (Soil)

PE-SPIKE2-ASL-1 **100 mL**
PE-SPIKE2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF, tr. Tartaric acid 15 comps.

Ba (Barium)	250
Cr (Chromium)	250
Cu (Copper)	250
Zn (Zinc)	250
V (Vanadium)	150
Ni (Nickel)	125
Co (Cobalt)	100
Pb (Lead)	100
Sb (Antimony)	100
As (Arsenic)	50
Cd (Cadmium)	50
Ag (Silver)	25
Be (Beryllium)	25
Se (Selenium)	25
Tl (Thallium)	25

Spike Sample Standard III (for ILM 05.2)

PE-SPIKE3-ASL-1 **100 mL**
PE-SPIKE3-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF, tr. Tartaric acid 17 comps.

Al (Aluminum)	200
Ba (Barium)	200
Co (Cobalt)	50
Mn (Manganese)	50
Ni (Nickel)	50
V (Vanadium)	50
Zn (Zinc)	50
Cu (Copper)	25
Cr (Chromium)	20
Sb (Antimony)	10
Be (Beryllium)	5
Cd (Cadmium)	5
Ag (Silver)	5
Tl (Thallium)	5
As (Arsenic)	4
Pb (Lead)	2
Se (Selenium)	1

These products require a Hazardous Shipping Fee except products marked with an asterisk *

AccuStandard equivalent of Perkin Elmer (PE)

NEW

ELAN 9000/6100 Setup/Stab/Masscal Solution

PE-STAB-ASL-1 **100 mL**
PE-STAB-ASL-5 **500 mL**
1 µg/mL each in 1% HNO_3 9 comps.

Ba (Barium)	Pb (Lead)
Cd (Cadmium)	Mg (Magnesium)
Ce (Cerium)	Rh (Rhodium)
Cu (Copper)	U (Uranium)
In (Indium)	

Supplied as a 100X concentration 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.

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

Low UV Standard

PE-UV-ASL-1 **100 mL**
PE-UV-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 3 comps.

Al (Aluminum)	S (Sulfur)
P (Phosphorus)	

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.

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

UV Wavecal Solution

PE-UVWAVE-ASL-1 **100 mL**
PE-UVWAVE-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HCl 11 comps.

K (Potassium)	100
P (Phosphorus)	100
S (Sulfur)	100
As (Arsenic)	20
La (Lanthanum)	20
Li (Lithium)	20
Mn (Manganese)	20
Mo (Molybdenum)	20
Na (Sodium)	20
Ni (Nickel)	20
Sc (Scandium)	20

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.

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

Initial Calibration Verification Standard 2

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

Sn (Tin)	Tl (Thallium)

Trace Metals I

PE-WPTM1-ASL-1-SET **2 x 100 mL**
PE-WPTM1-ASL-5-SET **2 x 500 mL**

PE-WPTM1-ASL
At stated conc. (µg/mL) in 5% HNO_3 14 comps.

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

PE-WPTM1-HG-ASL
10 µg/mL in 5% HNO_3

Hg (Mercury)	Supplied separately for better product stability.

Trace Metals II

PE-WPTM2-ASL-1 **100 mL**
PE-WPTM2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 3 comps.

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

Trace Metals III

PE-WPTM3-ASL-1 **100 mL**
PE-WPTM3-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 6 comps.

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

Alternate Metals 1

PE-WPAM1-ASL-1 **100 mL**
PE-WPAM1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 11 comps.

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

Alternate Metals 3

PE-WPAM3-ASL-1 **100 mL**
PE-WPAM3-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

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

AccuStandard equivalent of Teledyne

Check Mate 1

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

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

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

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

Ag (Silver)

Supplied separately for better product stability.

Check Mate 2

TELE-CHK2-ASL-1-SET **2 x 100 mL**
TELE-CHK2-ASL-5-SET **2 x 500 mL**

TELE-CHK2-ASL
At stated conc. (µg/mL) in 5% HCl, 1% HNO_3 17 comps.

Ca (Calcium)	100
K (Potassium)	100
Mg (Magnesium)	100
Na (Sodium)	100
Al (Aluminum)	10
Ba (Barium)	10
Be (Beryllium)	10
Cd (Cadmium)	10
Co (Cobalt)	10
Cr (Chromium)	10
Cu (Copper)	10
Fe (Iron)	10
Mn (Manganese)	10
Ni (Nickel)	10
Sb (Antimony)	10
V (Vanadium)	10
Zn (Zinc)	10

TELE-CHK2-AG-ASL
1000 µg/mL in 2% HNO_3

Ag (Silver)

Supplied separately for better product stability.

Check Mate 3

TELE-CHK3-ASL-1-SET **2 x 100 mL**
TELE-CHK3-ASL-5-SET **2 x 500 mL**

TELE-CHK3-ASL
At stated conc. (µg/mL) in 5% HCl, 1% HNO_3 17 comps.

Ca (Calcium)	10
K (Potassium)	10
Mg (Magnesium)	10
Na (Sodium)	10
Al (Aluminum)	1
Ba (Barium)	1
Be (Beryllium)	1
Cd (Cadmium)	1
Co (Cobalt)	1
Cr (Chromium)	1
Cu (Copper)	1
Fe (Iron)	1
Mn (Manganese)	1
Ni (Nickel)	1
Sb (Antimony)	1
V (Vanadium)	1
Zn (Zinc)	1

TELE-CHK3-AG-ASL
1000 µg/mL in 2% HNO_3

Ag (Silver)

Supplied separately for better product stability.

Check Mate 4

TELE-CHK4-ASL-1 **100 mL**
TELE-CHK4-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

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

Check Mate 5

TELE-CHK5-ASL-1 **100 mL**
TELE-CHK5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Ca (Calcium)	2000
K (Potassium)	2000
Mg (Magnesium)	2000
Na (Sodium)	2000
Al (Aluminum)	1000
Ba (Barium)	1000
Fe (Iron)	1000
Co (Cobalt)	500
Ni (Nickel)	500
V (Vanadium)	500
Cr (Chromium)	200
Cu (Copper)	200
Ag (Silver)	100
Be (Beryllium)	100
Mn (Manganese)	100
Zn (Zinc)	100

Check Mate 6

NEW

TELE-CHK6-ASL-1 **100 mL**
TELE-CHK6-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

As (Arsenic)	500
Pb (Lead)	500
Se (Selenium)	500
Tl (Thallium)	500
Cd (Cadmium)	100

Check Mate 7

TELE-CHK7-ASL-1 **100 mL**
TELE-CHK7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HCl, 1% HNO_3 17 comps.

Ca (Calcium)	50
K (Potassium)	50
Mg (Magnesium)	50
Na (Sodium)	50
Al (Aluminum)	5
Ba (Barium)	5
Be (Beryllium)	5
Cd (Cadmium)	5
Co (Cobalt)	5
Cr (Chromium)	5
Cu (Copper)	5
Fe (Iron)	5
Mn (Manganese)	5
Ni (Nickel)	5
Sb (Antimony)	5
V (Vanadium)	5
Zn (Zinc)	5

Check Mate 8

TELE-CHK8-ASL-1 **100 mL**
TELE-CHK8-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

Ca (Calcium)	5000
K (Potassium)	5000
Na (Sodium)	5000
Mg (Magnesium)	5000
Al (Aluminum)	2000
Ba (Barium)	2000
Fe (Iron)	1000
Sb (Antimony)	600
Co (Cobalt)	500
V (Vanadium)	500
Ni (Nickel)	400
Cu (Copper)	250
Zn (Zinc)	200
Mn (Manganese)	150
Ag (Silver)	100
As (Arsenic)	100
Cr (Chromium)	100
Tl (Thallium)	100
Be (Beryllium)	50
Cd (Cadmium)	50
Pb (Lead)	50
Se (Selenium)	50

EU Formulation

Scope: For the determination of 32 elements by ICP (Inductively Coupled Plasma)

DIN EN ISO 11885 - 32 Element ICP Standard Set

DINENISO-11885-1-SET **2 x 100 mL**
DINENISO-11885-5-SET **2 x 500 mL**

Part 1

DINENISO-11885A-1 **100 mL**
DINENISO-11885A-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 tr. HF
24 comps.

Ag (Silver)	20
Al (Aluminum)	40
As (Arsenic)	80
Ba (Barium)	2
Be (Beryllium)	2
Bi (Bismuth)	40
Ca (Calcium)	2
Cd (Cadmium)	10
Co (Cobalt)	10
Cr (Chromium)	10
Cu (Copper)	10
Fe (Iron)	20
K (Potassium)	50
Li (Lithium)	2
Mg (Magnesium)	1
Mn (Manganese)	2
Na (Sodium)	20
Ni (Nickel)	50
Pb (Lead)	50
Sb (Antimony)	50
Se (Selenium)	50
Sr (Strontium)	0.5
V (Vanadium)	10
Zn (Zinc)	5

Part 2

DINENISO-11885B-1 **100 mL**
DINENISO-11885B-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 tr. HF
8 comps.

B (Boron)	5
Mo (Molybdenum)	30
P (Phosphorus)	50
S (Sulfur)	50
Si (Silicon)	20
Sn (Tin)	50
Ti (Titanium)	5
Zr (Zirconium)	10

Gun Powder Residue

This is used in forensic applications for analyzing wipes for the presence of gun powder residue.

ICP-PWDRES-5 **500 mL**
3 components in 5% HNO_3

Element	µg/mL
Pb (Lead)	5
Ba (Barium)	5
Sb (Antimony)	0.2

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

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 trace NaOH

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

Technical Note

Contact our Technical Service Department for **Ready-to-Aspirate** working level calibration curves designed for your laboratories' specific calibration ranges.

ASTM D5600 Trace Metals in Petroleum Coke by ICP-AES

Multi-Element Calibration Standard

D-5600-01-1 **1 x 100 mL**
500 µg/mL each in 2-5% HNO_3 tr. HF 12 comps.

Aluminum	Magnesium	Sodium
Barium	Manganese	Titanium
Calcium	Nickel	Vanadium
Iron	Silicon	Zinc

Hydrochloric Acid Diluent

D-5600-BLH-5 **1 x 500 mL**
D-5600-BLH-L-VAP **L (2 x 500 mL)**

20% HCl in ASTM Type II water

Lithium Borate Diluent

D-5600-LIB-1 **1 x 100 mL**
D-5600-LIB-5 **1 x 500 mL**

2.0% Lithium Borate in 10% HCl

These products require a Hazardous Shipping Fee except products marked with an asterisk *

ICP/MS

Multi-Element Standards

■ **Ultra Pure Matrix** ■ **Special Packaging** ■ **Traceability to National Reference Materials**

AccuStandard's 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. After both wet chemical and instrumental analysis, the standards are packaged in acid leached FLPE containers to provide required protection and, of course, all standards are traceable to the National Institute of Standards and Technology (NIST) weights and Reference Materials.

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

Calibration Standard 4

ICP-MS-CAL4-1 * — **100 mL**

10 µg/mL each in H_2O trace HF — 12 comps.

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

Calibration Standard 2

ICP-MS-CAL2-1 — **100 mL**

10 µg/mL each in 5% HNO_3 — 29 comps.

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

Calibration Standard Set

ICP-MS-CAL-1-SET — **5 x 100 mL**

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

Calibration Standard 3

ICP-MS-CAL3-1 — **100 mL**

10 µg/mL each in 10% HCl — 10 comps.

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

Calibration Standard 5

ICP-MS-CAL5-1 — **100 mL**

10 µg/mL in 5% HNO_3

Element	Most Abundant Isotope
Hg *(Mercury)*	202

Matrix Blanks

Nitric Acid Blank

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

5% HNO_3 in ASTM Type I Water

Hydrochloric Acid Blank

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

5% HCl in ASTM Type I 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**

ASTM Type I Water

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Tuning Solutions

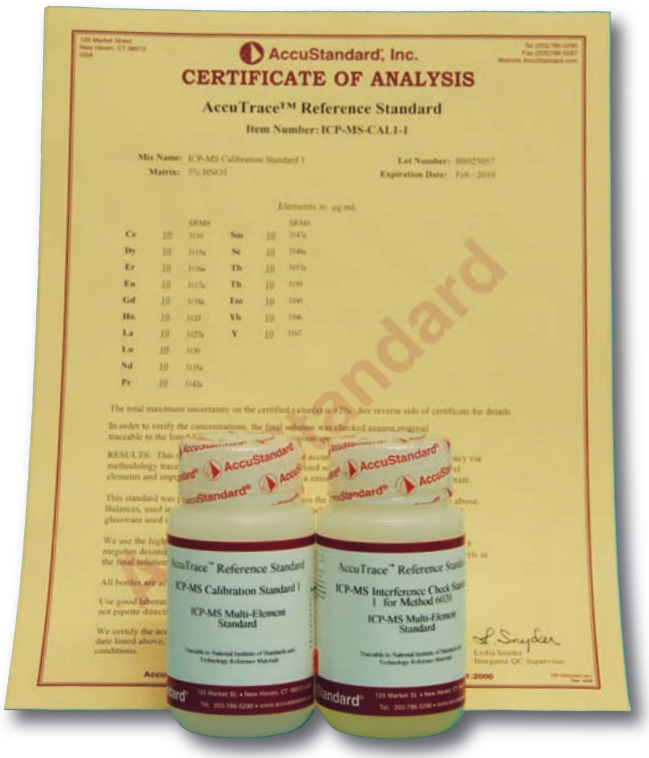
We offer two tuning solutions, both range from 7-238 mass units. Choose the one which best suits your needs.

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

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

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

Element	Most Abundant Isotope
Ba (Barium)	138
Be (Beryllium)	9
Bi (Bismuth)	209
Ce (Cerium)	140
Cu (Copper)	63
Ho (Holmium)	165
In (Indium)	115
Pb (Lead)	208
Li (Lithium)	7
Mg (Magnesium)	24
Tl (Thallium)	205
U (Uranium)	238
Y (Yttrium)	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
Al (Aluminum)	1000	27
C (Carbon)	2000	12
Ca (Calcium)	3000	40
Cl (Chloride)	18000	35
Fe (Iron)	2500	56
Mg (Magnesium)	1000	24
Mo (Molybdenum)	20	98
P (Phosphorous)	1000	31
K (Potassium)	1000	39
Na (Sodium)	2500	23
S (Sulphur)	1000	32
Ti (Titanium)	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
As *(Arsenic)*	10	75
Cd *(Cadmium)*	10	114
C *(Carbon)*	20	12
Cr *(Chromium)*	20	52
Cu *(Copper)*	20	63
Mn *(Manganese)*	20	55
Ni *(Nickel)*	20	58
Se *(Selenium)*	10	80
Ag *(Silver)*	20	107
V *(Vanadium)*	20	51
Zn *(Zinc)*	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 Solution

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

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

Element	Most Abundant Isotope
Ag (Silver)	107

Solution B

ICP-MS-MEMCHKB-R1 * — **100 mL**
At stated conc. (µg/mL) in H_2O — 3 comps.

Element	µg/mL	Most Abundant Isotope
Cl (Chloride)	7200	35
P (Phosphorous)	1000	31
S (Sulphur)	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.

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
Sb (Antimony)	100	121
As (Arsenic)	50	75
Ba (Barium)	250	138
Be (Beryllium)	25	9
Cd (Cadmium)	25	114
Cr (Chromium)	100	52
Co (Cobalt)	100	59
Cu (Copper)	100	63
Fe (Iron)	500	56
Pb (Lead)	50	208
Mn (Manganese)	100	55
Ni (Nickel)	100	58
Se (Selenium)	25	80
Ag (Silver)	25	107
Tl (Thallium)	25	205
V (Vanadium)	100	51
Zn (Zinc)	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
Sb (Antimony)	100	121
As (Arsenic)	50	75
Ba (Barium)	250	138
Be (Beryllium)	25	9
Cd (Cadmium)	50	114
Cr (Chromium)	250	52
Co (Cobalt)	100	59
Cu (Copper)	250	63
Pb (Lead)	100	208
Ni (Nickel)	125	58
Se (Selenium)	25	80
Ag (Silver)	25	107
Tl (Thallium)	25	205
V (Vanadium)	150	51
Zn (Zinc)	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

Sample 1

ICP-MS-QC1-1 **100 mL**

10 µg/mL each in 2% HNO_3 9 comps.

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

Sample 2

ICP-MS-QC2-1 **100 mL**

10 µg/mL each in 5% HNO_3 25 comps

Element	Most Abundant Isotope
Al (Aluminum)	27
Sb (Antimony)	121
As (Arsenic)	75
Ba (Barium)	138
Be (Beryllium)	9
Cd (Cadmium)	114
Ca (Calcium)	40
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Fe (Iron)	56
Pb (Lead)	208
Mg (Magnesium)	24
Mn (Manganese)	55
Mo (Molybdenum)	98
Ni (Nickel)	56
K (Potassium)	39
Se (Selenium)	80
Ag (Silver)	107
Na (Sodium)	23
Tl (Thallium)	205
Th (Thorium)	232
U (Uranium)	238
V (Vanadium)	51
Zn (Zinc)	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
Sb (Antimony)	121
As (Arsenic)	75
Be (Beryllium)	9
Cd (Cadmium)	114
Ca (Calcium)	40
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Fe (Iron)	56
Pb (Lead)	208
Li (Lithium)	7
Mg (Magnesium)	24
Mn (Manganese)	55
Mo (Molybdenum)	98
Ni (Nickel)	58
Se (Selenium)	80
Sr (Strontium)	88
Tl (Thallium)	205
Ti (Titanium)	48
V (Vanadium)	51
Zn (Zinc)	64

Internal Standards

Single Internal Standards

For convenience we offer two concentrations - You decide which is most convenient.

Element	Matrix	Unit	10 µg/mL	100 µg/mL
Bismuth	5% HNO	100 mL	ICP-MS-IS-BI-1	ICP-MS-IS-BI-1-10X
Indium	5% HNO_3	100 mL	ICP-MS-IS-IN-1	ICP-MS-IS-IN-1-10X
Rhodium	10% HCl	100 mL	ICP-MS-IS-RH-1	ICP-MS-IS-RH-1-10X
Scandium	5% HNO_3	100 mL	ICP-MS-IS-SC-1	ICP-MS-IS-SC-1-10X
Terbium	5% HNO_3	100 mL	ICP-MS-IS-TB-1	ICP-MS-IS-TB-1-10X
Yttrium	5% HNO_3	100 mL	ICP-MS-IS-Y-1	ICP-MS-IS-Y-1-10X

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

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Method 200.8 Determination of Trace Elements in Water and Waste 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
Al (Aluminum)	27
Sb (Antimony)	121
As (Arsenic)	75
Be (Beryllium)	9
Cd (Cadmium)	114
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Pb (Lead)	208
Mn (Manganese)	55
Mo (Molybdenum)	98
Ni (Nickel)	58
Se (Selenium)	80
Tl (Thallium)	205
Th (Thorium)	232
U (Uranium)	238
V (Vanadium)	51
Zn (Zinc)	64

Calibration Standard #2

ICP-MS-200.8-CAL2-1 — **100 mL**
10 µg/mL each in 2% HNO_3 tr. HF — 2 comps.

Element	Most Abundant Isotope
Ba (Barium)	138
Ag (Silver)	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
Al (Aluminum)	10	27
Sb (Antimony)	10	121
As (Arsenic)	10	75
Be (Beryllium)	10	9
Cd (Cadmium)	10	114
Cr (Chromium)	10	52
Co (Cobalt)	10	59
Cu (Copper)	10	63
Pb (Lead)	10	208
Mn (Manganese)	10	55
Mo (Molybdenum)	10	98
Ni (Nickel)	10	58
Se (Selenium)	50	80
Tl (Thallium)	10	205
Th (Thorium)	10	232
U (Uranium)	10	238
V (Vanadium)	10	51
Zn (Zinc)	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
Hg *(Mercury)*	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
Sc (Scandium)	45
Y (Yttrium)	89
In (Indium)	115
Tb (Terbium)	159
Bi (Bismuth)	209

Internal Standard #2

ICP-MS-200.8-IS2-1 — **100 mL**
100 µg/mL in 2% HNO_3

Element	Most Abundant Isotope
Au (Gold)	197

Tuning Standard

ICP-MS-200.8-TUN-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 5 comps.

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

Method 6020 Standards for Inductively Coupled Mass Spectrometry

Calibration Standard

NEW

ICP-MS-6020-CAL-R-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 22 comps.

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

Calibration Standard

ICP-MS-6020-CAL-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 15 comps.

Element	Most Abundant Isotope
Al (Aluminum)	27
Sb (Antimony)	121
As (Arsenic)	75
Ba (Barium)	138
Be (Beryllium)	9
Cd (Cadmium)	114
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Pb (Lead)	208
Mn (Manganese)	55
Ni (Nickel)	58
Ag (Silver)	107
Tl (Thallium)	205
Zn (Zinc)	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
Al (Aluminum)	1000	27
Cl (Chloride)	10000	35
Ca (Calcium)	1000	40
C (Carbon)	2000	12
Fe (Iron)	1000	56
Mg (Magnesium)	1000	24
Mo (Molybdenum)	20	98
P (Phosphorous)	1000	31
K (Potassium)	1000	39
Na (Sodium)	1000	23
S (Sulfur)	1000	32
Ti (Titanium)	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
As (Arsenic)	75
Cd (Cadmium)	114
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Mn (Manganese)	55
Ni (Nickel)	58
Ag (Silver)	107
Zn (Zinc)	64

Internal Standard

ICP-MS-6020-IS-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 7 comps.

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

Tuning Standard

ICP-MS-6020-TUN-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 4 comps.

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

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. All standards undergo rigorous quality assurance checks. Major constituents in the final Standard are typically analyzed by both plasma emission and rotrode techniques. 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. We developed a Premium Organometallic line for chemists preferring to have organometallic standards with <1 ppm sulfur or phosphorous (see Table of Contents).

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

Single Element Wear Metals

Organometallic ICP/XRF

Element	1000 µg/g in 75 cSt base oil Cat. No. (50 g)	5000 µg/g in 75 cSt base oil Cat. No. (50 g)
Al (Aluminum)	WM-75CST-01	WM-75CST-01-5X
Sb (Antimony)	WM-75CST-02	WM-75CST-02-5X
As (Arsenic)	WM-75CST-03	
Ba (Barium)	WM-75CST-04	WM-75CST-04-5X
Be (Beryllium) ***NEW***	WM-75CST-05	
Bi (Bismuth)	WM-75CST-06	WM-75CST-06-5X
B (Boron)	WM-75CST-07	WM-75CST-07-5X
Cd (Cadmium)	WM-75CST-08	WM-75CST-08-5X
Ca (Calcium)	WM-75CST-09	WM-75CST-09-5X
Cr (Chromium)	WM-75CST-13	WM-75CST-13-5X
Co (Cobalt) ***NEW***	WM-75CST-14	WM-75CST-14-5X
Cu (Copper)	WM-75CST-15	WM-75CST-15-5X
Fe (Iron)	WM-75CST-27	WM-75CST-27-5X
La (Lanthanum) ***NEW***	WM-75CST-28	
Pb (Lead)	WM-75CST-29	WM-75CST-29-5X
Li (Lithium)	WM-75CST-30	WM-75CST-30-5X
Mg (Magnesium)	WM-75CST-32	WM-75CST-32-5X
Mn (Manganese)	WM-75CST-33	WM-75CST-33-5X
Hg (Mercury)	WM-75CST-34	
Mo (Molybdenum)	WM-75CST-35	WM-75CST-35-5X
Ni (Nickel)	WM-75CST-37	WM-75CST-37-5X
P (Phosphorous)	WM-75CST-41	WM-75CST-41-5X
K (Potassium)	WM-75CST-43	WM-75CST-43-5X
Sc (Scandium)	WM-75CST-50	
Se (Selenium) ***NEW***	WM-75CST-51	WM-75CST-51-5X
Si (Silicon)	WM-75CST-52	WM-75CST-52-5X
Ag (Silver)	WM-75CST-53	WM-75CST-53-5X
Na (Sodium)	WM-75CST-54	WM-75CST-54-5X
Sr (Strontium)	WM-75CST-55	
S (Sulfur) ***NEW***	WM-75CST-56	WM-75CST-56-5X
Tl (Thallium)	WM-75CST-60	
Sn (Tin)	WM-75CST-63	WM-75CST-63-5X
Ti (Titanium)	WM-75CST-64	WM-75CST-64-5X
V (Vanadium)	WM-75CST-67	WM-75CST-67-5X
Y (Yttrium) ***NEW***	WM-75CST-69	WM-75CST-69-5X
Zn (Zinc)	WM-75CST-70	WM-75CST-70-5X
Zn (Zirconium)	WM-75CST-71	WM-75CST-71-5X

Matrix Oil and Stabilizer

75 cSt Oil

MOSOL-75 **400 g**

Stabilizer

WM-STAB **1 x 50 g**

Technical Note

Used to improve the stability or Organometallic Standards when diluting into solvents such as Kerosene.

Metals Additives

Metals Additives Standard

MA-900-100G **100 g**
MA-900-200G **200 g**
900 µg/g each in Hydrocarbon oil
MA-1000-100G **100 g**
MA-1000-200G **200 g**
1000 µg/g each in Hydrocarbon oil
MA-3000-100G **100 g**
MA-3000-200G **200 g**
3000 µg/g each in Hydrocarbon oil
MA-5000-100G **100 g**
MA-5000-200G **200 g**
5000 µg/g each in Hydrocarbon oil 5 comps.

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

See our BioFuel Standards in the Petrochemical Section of this Catalog for Wear Metals in BioFuels.

These products do not require Hazardous Shipping Fee at this time.

Organometallic Standards

AA, ICP, DCP & XRF Analysis

12 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-12-1X-100G
	200 g	WM-12-1X-200G
30 µg/g	100 g	WM-12-3X-100G
	200 g	WM-12-3X-200G
50 µg/g	100 g	WM-12-5X-100G
	200 g	WM-12-5X-200G
100 µg/g	100 g	WM-12-10X-100G
	200 g	WM-12-10X-200G
300 µg/g	100 g	WM-12-30X-100G
	200 g	WM-12-30X-200G
500 µg/g	100 g	WM-12-50X-100G
	200 g	WM-12-50X-200G
900 µg/g	100 g	WM-12-90X-100G
	200 g	WM-12-90X-200G
	100 gram Set	WM-12-100G-SET set of above 7 x 100 g
	200 gram Set	WM-12-200G-SET set of above 7 x 200 g

Each Wear Metal Standard contains 12 elements listed below in hydrocarbon oil at the stated concentration.

Ag (Silver)
Al (Aluminum)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Na (Sodium)
Ni (Nickel)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)

21 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-21-1X-100G
	200 g	WM-21-1X-200G
30 µg/g	100 g	WM-21-3X-100G
	200 g	WM-21-3X-200G
50 µg/g	100 g	WM-21-5X-100G
	200 g	WM-21-5X-200G
100 µg/g	100 g	WM-21-10X-100G
	200 g	WM-21-10X-200G
300 µg/g	100 g	WM-21-30X-100G
	200 g	WM-21-30X-200G
500 µg/g	100 g	WM-21-50X-100G
	200 g	WM-21-50X-200G
900 µg/g	100 g	WM-21-90X-100G
	200 g	WM-21-90X-200G
	100 gram Set	WM-21-100G-SET set of above 7 x 100 g
	200 gram Set	WM-21-200G-SET set of above 7 x 200 g

Each Wear Metal Standard contains 21 elements listed below in hydrocarbon oil at the stated concentration.

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

22 Wear Metal Multi-Element

NEW

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-22-1X-100G
	200 g	WM-22-1X-200G
30 µg/g	100 g	WM-22-3X-100G
	200 g	WM-22-3X-200G
50 µg/g	100 g	WM-22-5X-100G
	200 g	WM-22-5X-200G
100 µg/g	100 g	WM-22-10X-100G
	200 g	WM-22-10X-200G
300 µg/g	100 g	WM-22-30X-100G
	200 g	WM-22-30X-200G
500 µg/g	100 g	WM-22-50X-100G
	200 g	WM-22-50X-200G
900 µg/g	100 g	WM-22-90X-100G
	200 g	WM-22-90X-200G
	100 gram Set	WM-22-100G-SET set of above 7 x 100 g
	200 gram Set	WM-22-200G-SET set of above 7 x 200 g

Each Wear Metal Standard contains 22 elements listed below in hydrocarbon oil at the stated concentration.

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

23 Wear Metal Multi-Element

NEW

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-23-1X-100G
	200 g	WM-23-1X-200G
30 µg/g	100 g	WM-23-3X-100G
	200 g	WM-23-3X-200G
50 µg/g	100 g	WM-23-5X-100G
	200 g	WM-23-5X-200G
100 µg/g	100 g	WM-23-10X-100G
	200 g	WM-23-10X-200G
300 µg/g	100 g	WM-23-30X-100G
	200 g	WM-23-30X-200G
500 µg/g	100 g	WM-23-50X-100G
	200 g	WM-23-50X-200G
900 µg/g	100 g	WM-23-90X-100G
	200 g	WM-23-90X-200G
	100 gram Set	WM-23-100G-SET set of above 7 x 100 g
	200 gram Set	WM-23-200G-SET set of above 7 x 200 g

Each Wear Metal Standard contains 23 elements listed below in hydrocarbon oil at the stated concentration.

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

These products do not require Hazardous Shipping fee at this time.

Organometallic Standards

Premium Sulfur-Free

- Highly Concentrated Liquid Organometallic Standards
- Stabilized
- Sulfur/Phosphorous free (< 1 ppm)
- Ready for Use

Organometallic Single Element Stock Standards

Sulfur free Element	@ 1000 µg/g Cat. No.	50 mL	@ 5000 µg/g Cat. No.	50 mL
Al (Aluminum)	WM-NMS-01		WM-NMS-01-5X	
Sb (Antimony)	WM-NMS-02		WM-NMS-02-5X	
As (Arsenic) ***NEW***	WM-NMS-03		WM-NMS-03-5X	
Ba (Barium)	WM-NMS-04		WM-NMS-04-5X	
Be (Beryllium) ***NEW***	WM-NMS-05		WM-NMS-05-5X	
Cd (Cadmium)	WM-NMS-08		WM-NMS-08-5X	
Ca (Calcium)	WM-NMS-09		WM-NMS-09-5X	
Ce (Cerium) ***NEW***	WM-NMS-11		WM-NMS-11-5X	
Cr (Chromium)	WM-NMS-13		WM-NMS-13-5X	
Co (Cobalt)	WM-NMS-14		WM-NMS-14-5X	
Cu (Copper)	WM-NMS-15		WM-NMS-15-5X	
Ga (Gallium) ***NEW***	WM-NMS-20		WM-NMS-20-5X	
Au (Gold) ***NEW***	WM-NMS-22		----------	----
Fe (Iron)	WM-NMS-27		WM-NMS-27-5X	
Pb (Lead)	WM-NMS-29		WM-NMS-29-5X	
Li (Lithium) ***NEW***	WM-NMS-30		WM-NMS-30-5X	
Mg (Magnesium)	WM-NMS-32		WM-NMS-32-5X	
Mn (Manganese)	WM-NMS-33		WM-NMS-33-5X	
Hg (Mercury) ***NEW***	WM-NMS-34		WM-NMS-34-5X	
Mo (Molybdenum)	WM-NMS-35		WM-NMS-35-5X	
Ni (Nickel)	WM-NMS-37		WM-NMS-37-5X	
P (Phosphorous)	WM-NMS-41		WM-NMS-41-5X	
K (Potassium)	WM-NMS-43		WM-NMS-43-5X	
Se (Selenium)	WM-NMS-51		WM-NMS-51-5X	
Si (Silicon)	WM-NMS-52		WM-NMS-52-5X	
Ag (Silver) ***NEW***	WM-NMS-53		WM-NMS-53-5X	
Na (Sodium)	WM-NMS-54		WM-NMS-54-5X	
Sr (Strontium)	WM-NMS-55		WM-NMS-55-5X	
Tl (Thallium)	WM-NMS-60		WM-NMS-60-5X	
Sn (Tin) ***NEW***	WM-NMS-63		WM-NMS-63-5X	
Ti (Titanium)	WM-NMS-64		WM-NMS-64-5X	
V (Vanadium)	WM-NMS-67		WM-NMS-67-5X	
Y (Yttrium)	WM-NMS-69		WM-NMS-69-5X	
Zn (Zinc)	WM-NMS-70		WM-NMS-70-5X	
Zr (Zirconium)	WM-NMS-71		WM-NMS-71-5X	

Stabilization Solutions

The solutions were specifically designed for chelating & solubilizing our line of Sulfur-Free Organometallic Standards. Contact Tech Service for additional information.

Premium Sulfur-Free
Sulfur below detection limits

Stabilizer Solution A

ASTM-P-0122-0.5	**50 mL**
ASTM-P-0122-1	**100 mL**

Stabilizer Solution B

ASTM-P-0123-0.5	**50 mL**
ASTM-P-0123-1	**100 mL**

Stabilizer Solution C

ASTM-P-0124-0.5	**50 mL**
ASTM-P-0124-1	**100 mL**

Stabilizer Solution D

ASTM-P-0125-0.5	**50 mL**
ASTM-P-0125-1	**100 mL**

Contains No Metallic Sulfonates

These highly concentrated stabilized solutions can be used for customer specific formulations of additive elements in lubricating oils, iron, nickel and vanadium in residual oil, and wear metals in oils. These organometallic solutions can also be used to prepare single element or multi-element standards for plasma emission (ICP or DCP), rotating disk (rotrode), or atomic absorption spectroscopy (AA). The starting materials are PURE REAGENTS and have been certified against NIST SRM's whenever available. **THEY DO NOT CONTAIN PHOSPHORUS OR SULFUR.**

Organometallic Single Element Concentrates

Element	Conc. (Wt. %)	Cat. No.	25 grams	Cat. No.	50 grams
Al (Aluminum)	3	WM-NMS-01-30X-25G		WM-NMS-01-30X-50G	
Sb (Antimony) ***NEW***		WM-NMS-02-20X-25G		WM-NMS-02-20X-50G	
Ba (Barium)	12.5	WM-NMS-04-125X-25G		WM-NMS-04-125X-50G	
Cd (Cadmium)	10	WM-NMS-08-100X-25G		WM-NMS-08-100X-50G	
Ca (Calcium)	5	WM-NMS-09-50X-25G		WM-NMS-09-50X-50G	
Ce (Cerium) ***NEW***		WM-NMS-11-50X-25G		WM-NMS-11-50X-50G	
Cr (Chromium)	3.5	WM-NMS-13-35X-25G		WM-NMS-13-35X-50G	
Co (Cobalt)	7.5	WM-NMS-14-75X-25G		WM-NMS-14-75X-50G	
Cu (Copper)	6	WM-NMS-15-60X-25G		WM-NMS-15-60X-50G	
Fe (Iron)	4	WM-NMS-27-40X-25G		WM-NMS-27-40X-50G	
Pb (Lead)	20	WM-NMS-29-200X-25G		WM-NMS-29-200X-50G	
Li (Lithium) ***NEW***	1.5	WM-NMS-30-15X-25G		WM-NMS-30-15X-50G	
Mg (Magnesium422)	3	WM-NMS-32-30X-25G		WM-NMS-32-30X-50G	
Mn (Manganese)	6	WM-NMS-33-60X-25G		WM-NMS-33-60X-50G	
Mo (Molybdenum)	5	WM-NMS-35-50X-25G		WM-NMS-35-50X-50G	
Ni (Nickel)	5	WM-NMS-37-50X-25G		WM-NMS-37-50X-50G	
P (Phosphorus)	5	WM-NMS-41-50X-25G		WM-NMS-41-50X-50G	
K (Potassium) ***NEW***		WM-NMS-43-75X-25G		WM-NMS-43-75X-50G	
Pr (Praseodymium)	3	WM-NMS-44-30X-25G		WM-NMS-44-30X-50G	
Se (Selenium)	3.5	WM-NMS-51-35X-25G		WM-NMS-51-35X-50G	
Si (Silicon) ***NEW***	7.5	WM-NMS-52-75X-25G		WM-NMS-52-75X-50G	
Na (Sodium) ***NEW***	2.5	WM-NMS-54-25X-25G		WM-NMS-54-25X-50G	
Sr (Strontium)	10	WM-NMS-55-100X-25G		WM-NMS-55-100X-50G	
Tl (Thallium)	5	WM-NMS-60-50X-25G		WM-NMS-60-50X-50G	
Sn (Tin) ***NEW***		WM-NMS-63-75X-25G		WM-NMS-63-75X-50G	
Ti (Titanium)	5	WM-NMS-64-50X-25G		WM-NMS-64-50X-50G	
V (Vanadium)	4	WM-NMS-67-40X-25G		WM-NMS-67-40X-50G	
Y (Yttrium) ***NEW***	2.5	WM-NMS-69-25X-25G		WM-NMS-69-25X-50G	
Zn (Zinc)	6	WM-NMS-70-60X-25G		WM-NMS-70-60X-50G	
Zr (Zirconium)	5	WM-NMS-71-50X-25G		WM-NMS-71-50X-50G	

Technical Note

These standards are **sulfur free** (below detection limits) **organometallic standards** for X-ray Fluorescence (XRF), plasma emission (ICP or DCP), rotating disk (rotrode), or atomic absorption (AA). They are stabilized for blending together with other Analytes to prepare multi-element standards.

Organometallic Standards

Premium Sulfur-Free

11 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 mL	WM-11-NMS-1X-1
30 µg/g	100 mL	WM-11-NMS-3X-1
50 µg/g	100 mL	WM-11-NMS-5X-1
100 µg/g	100 mL	WM-11-NMS-10X-1
300 µg/g	100 mL	WM-11-NMS-30X-1
500 µg/g	100 mL	WM-11-NMS-50X-1
900 µg/g	100 mL	WM-11-NMS-90X-1

100 mL Set **WM-11-NMS-1-SET**
set of above 7 x 100 mL

Each Wear Metal Standard contains 11 elements listed below in hydrocarbon oil at the stated concentration.

Al (Aluminum)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Na (Sodium)
Ni (Nickel)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)

12 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 mL	WM-12-NMS-1X-1
30 µg/g	100 mL	WM-12-NMS-3X-1
50 µg/g	100 mL	WM-12-NMS-5X-1
100 µg/g	100 mL	WM-12-NMS-10X-1
300 µg/g	100 mL	WM-12-NMS-30X-1
500 µg/g	100 mL	WM-12-NMS-50X-1
900 µg/g	100 mL	WM-12-NMS-90X-1

100 mL Set **WM-12-NMS-1-SET**
set of above 7 x 100 mL

Each Wear Metal Standard contains 12 elements listed below in hydrocarbon oil at the stated concentration.

Ag (Silver)
Al (Aluminum)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Na (Sodium)
Ni (Nickel)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)

Contains No Metallic Sulfonates

Premium Sulfur-Free

Sulfur below detection limits

20 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 mL	WM-20-NMS-1X-1
30 µg/g	100 mL	WM-20-NMS-3X-1
50 µg/g	100 mL	WM-20-NMS-5X-1
100 µg/g	100 mL	WM-20-NMS-10X-1
300 µg/g	100 mL	WM-20-NMS-30X-1
500 µg/g	100 mL	WM-20-NMS-50X-1
900 µg/g	100 mL	WM-20-NMS-90X-1

100 mL Set **WM-20-NMS-1-SET**
set of above 7 x 100 mL

Each Wear Metal Standard contains 20 elements listed below in hydrocarbon oil at the stated concentration.

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

21 Wear Metal Multi-Element

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

100 mL Set **WM-21-NMS-1-SET**
set of above 7 x 100 mL

Each Wear Metal Standard contains 21 elements listed below in hydrocarbon oil at the stated concentration.

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

Recommended Internal Standard

Organometallic (Internal Standard) Sulfur free

	Conc.	Cat. No.	50 mL
Cobalt	1000 µg/g	WM-NMS-14	
	5000 µg/g	WM-NMS-14-5X	

These products do not require Hazardous Shipping fee at this time.

Sulfur and Metals in Oil

Sulfur and Metals in Mineral Oil

ASTM-P-0100-SET — **12 x 100 mL**

Cat. No.	Sulfur (Wt. %)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0100-01	0.00	0	0	
ASTM-P-0100-02	0.50	10	500	
ASTM-P-0100-03	1.00	100	25	
ASTM-P-0100-04	1.50	80	250	
ASTM-P-0100-05	2.00	40	100	
ASTM-P-0100-06	2.50	5	400	
ASTM-P-0100-07	3.00	60	300	
ASTM-P-0100-08	3.50	0	200	
ASTM-P-0100-09	4.00	100	0	
ASTM-P-0100-10	4.50	50	250	
ASTM-P-0100-11	5.00	20	500	
ASTM-P-0100-12	5.50	100	50	

Sulfur and Metals in Residual Fuel Oil

ASTM-P-0101-SET — **12 x 100 mL**

Cat. No.	Sulfur (Wt. %)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0101-01	0.00	0	0	
ASTM-P-0101-02	0.50	10	500	
ASTM-P-0101-03	1.00	100	25	
ASTM-P-0101-04	1.50	80	250	
ASTM-P-0101-05	2.00	40	100	
ASTM-P-0101-06	2.50	5	400	
ASTM-P-0101-07	3.00	60	300	
ASTM-P-0101-08	3.50	0	200	
ASTM-P-0101-09	4.00	100	0	
ASTM-P-0101-10	4.50	50	250	
ASTM-P-0101-11	5.00	20	500	
ASTM-P-0101-12	5.50	100	50	

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)	100 mL
ASTM-P-0102-01	0.00	0	0	0	
ASTM-P-0102-02	0.50	300	10	500	
ASTM-P-0102-03	1.00	500	100	25	
ASTM-P-0102-04	-----	100	80	250	
ASTM-P-0102-05	2.00	200	40	100	
ASTM-P-0102-06	2.50	400	5	400	
ASTM-P-0102-07	3.00	0	60	300	
ASTM-P-0102-08	3.50	500	0	200	
ASTM-P-0102-09	-----	100	100	0	
ASTM-P-0102-10	4.50	300	50	250	
ASTM-P-0102-11	5.00	200	20	500	
ASTM-P-0102-12	5.50	50	100	50	

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)	100 mL
ASTM-P-0103-01	0.00	0	0	0	
ASTM-P-0103-02	0.50	300	10	500	
ASTM-P-0103-03	1.00	500	100	25	
ASTM-P-0103-04	-----	100	80	250	
ASTM-P-0103-05	2.00	200	40	100	
ASTM-P-0103-06	2.50	400	5	400	
ASTM-P-0103-07	3.00	0	60	300	
ASTM-P-0103-08	3.50	500	0	200	
ASTM-P-0103-09	-----	100	100	0	
ASTM-P-0103-10	4.50	300	50	250	
ASTM-P-0103-11	5.00	200	20	500	
ASTM-P-0103-12	5.50	50	100	50	

After Acid Decomposition of Sample

Stock Multi-Element in Mineral Oil

D-5708-A-10X — **100 mL**
100 µg/g in 20 cSt mineral oil — 3 comps.

Iron
Nickel
Vanadium

Nitric Acid Blank

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

5% HNO_3 in ASTM Type I Water

Working Level Multi-Element Aqueous Standard

D-5708-B-5 Δ — **500 mL**
10 µg/mL each in 2-5% HNO_3 — 3 comps.

Iron
Nickel
Vanadium

Stock Multi-Element Aqueous Standard

D-5708-B-10X-1 Δ — **100 mL**
D-5708-B-10X-5 Δ — **500 mL**
100 µg/mL each in 2-5% HNO_3 — 3 comps.

Iron
Nickel
Vanadium

Stock Multi-Element Aqueous Standard

D-5863-95A-10X-1 Δ — **1 x 100 mL**
2-5% HNO_3 — 3 comps.

Iron	100	Vanadium	200
Nickel	200		

Stock Multi-Element Standard in Mineral Oil

D-5863-95B-10X — **1 x 100 g**
At stated conc. (µg/g) in 20 cst Mineral Oil — 3 comps.

Sodium	50	Vanadium	150
Nickel	200		

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.%)	100 mL
ASTM-P-0104-01	0.0005	
ASTM-P-0104-02	0.0025	
ASTM-P-0104-03	0.0050	
ASTM-P-0104-04	0.0075	
ASTM-P-0104-05	0.0100	
ASTM-P-0104-06	0.0125	
ASTM-P-0104-07	0.0150	
ASTM-P-0104-08	0.0175	
ASTM-P-0104-09	0.0200	

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.%)	100 mL
ASTM-P-0105-01	0.0000	
ASTM-P-0105-02	0.0300	
ASTM-P-0105-03	0.0400	
ASTM-P-0105-04	0.0500	
ASTM-P-0105-05	0.0600	
ASTM-P-0105-06	0.0800	
ASTM-P-0105-07	0.1000	

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.%)	100 mL
ASTM-P-0106-01	0.0000	
ASTM-P-0106-02	0.0005	
ASTM-P-0106-03	0.0010	
ASTM-P-0106-04	0.0025	
ASTM-P-0106-05	0.0050	
ASTM-P-0106-06	0.0075	
ASTM-P-0106-07	0.0100	

Δ Requires a Hazardous Shipping Fee

Lubricating Oil Standards

ASTM-P-0108-SET — 17 x 100 mL

Designed for ASTM 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

ASTM-P-0109-SET — 17 x 100 mL

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

ASTM-P-0110-SET — 17 x 100 mL

Designed for ASTM D4927

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

ASTM-P-0111-SET — 17 x 100 mL

Designed for ASTM D4927

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

ASTM-P-0112-SET — 17 x 100 mL

Cat. No. Nominal Value	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0112-01	0.600	0.100	0.005	0.175	0.060
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	0.000	0.000	0.000	0.000	0.000

ASTM-P-0113-SET — 17 x 100 mL

Designed for ASTM D4628 & D4927

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	0.450	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

These products do not require Hazardous Shipping Fees at this time.

Lubricating Oil Standards (Continued)

ASTM-P-0114-SET — **17 x 100 mL**

EDXRF ASTM Method — Designed for ASTM 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

ASTM-P-0115-SET — **17 x 100 mL**

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

ASTM-P-0116-SET — **11 x 100 mL**

Additives — 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	3.000	1.000	3.000	2.000
ASTM-P-0116-03	2.000	1.250	1.000	1.500
ASTM-P-0116-04	5.000	1.500	0.500	1.200
ASTM-P-0116-05	4.000	0.500	1.500	0.750
ASTM-P-0116-06	2.500	0.750	4.000	1.000
ASTM-P-0116-07	4.000	0.500	2.000	1.250
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

ASTM-P-0117-SET — **10 x 100 mL**

WLXRF ASTM Method — 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

ASTM-P-0118-SET — **10 x 100 mL**

WLXRF ASTM Method — 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)

ASTM-P-0119-SET — **22 x 100 mL**

Designed for ASTM D4628, D4927, D4951, D6443

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

Standards of Interest

Concentration for the sets on pages 409-411 are targets. Actual production lots may vary.

These products do not require Hazardous Shipping charges at this time.

ASTM-P-0120-SET — **23 x 100 mL**

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

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

Stabilization Solutions

The solutions were specifically designed for chelating & solubilizing our line of Sulfur-Free Organometallic Standards. Contact Tech Service for additional information.

Stabilizer Solution A

ASTM-P-0122-0.5	**50 mL**
ASTM-P-0122-1	**100 mL**

Stabilizer Solution B

ASTM-P-0123-0.5	**50 mL**
ASTM-P-0123-1	**100 mL**

Stabilizer Solution C

ASTM-P-0124-0.5	**50 mL**
ASTM-P-0124-1	**100 mL**

Stabilizer Solution D

ASTM-P-0125-0.5	**50 mL**
ASTM-P-0125-1	**100 mL**

ASTM D3230 Determination of Salts in Crude Oil

Mixed Salt Solution

D-3230-89-1 Δ **100 mL**
D-3230-89-5 Δ **500 mL**
At stated conc. in Alcohol Solution (1-butanol : MeOH) (ratio 63:37) tr. H_2O 3 comps.

Calcium chloride	10 µg/mL	Sodium chloride	70 µg/mL
Magnesium chloride	20 µg/mL		

ASTM D3237 Lead in Gasoline by AA Spectroscopy

Lead Standard Calibration Curve

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

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

D3237 Meets EPA Guidelines for RFG Analysis

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

Trace Metals Standard

D-3605-91-1 **1 x 100 mL**
At stated conc. in 1,2,3,4-Tetrahydronaphthalene 4 comps.

Na (Sodium)	(250 µg/mL)	Ca (Calcium)	(250 µg/mL)
Pb (Lead)	(250 µg/mL)	V (Vanadium)	(250 µg/mL)

Standards of Interest

See Table of Contents for a complete listing of Wear Metal Standards.

ASTM D3831 Manganese in Gasoline by AA Spectroscopy

Manganese Stock Solution

D-3831 Δ **1 x 100 mL**

Manganese @ 1.0 g Mn / gal (264.2 mg Mn / L) in Methyl isobutyl ketone

Δ Requires a Hazardous Shipping Fee

Solid Waste Analysis

Solid Matrix Standards

AccuStandard offers a broad range of trace element standards in Solid Matrices to meet the requirements for "real world" solid waste reference materials. All Standards are furnished with a Certificate of Analysis, with the mean values, standard deviations, confidence intervals and performance intervals. A list of additional elements/analytes, instructions and other pertinent information is also included. Values listed on the Certificate are generally the result of round robin analyses consisting of testing conducted by an average of 20 independent laboratories.

- **Ideal for both AA and ICP Analysis**
- **Certified by EPA Methods and Protocols**
- **NATURAL Matrix, Not spiked or fortified**
- **US EPA SW-846, 3rd Edition Method 3050**
- **Method 1311**
- **Lead Abatement Program Material**

Metals in Sludges

Metal Concentration (in mg/Kg)	Paint Sludge CRM006-050	Plating Sludge #1 CRM009-100	Plating Sludge #2 CRM010-100	Plating Sludge #3 (POTW) CRM011-100	Raw Sewage CRM018-050
Metal	**50 g**	**120 g**	**100 g**	**100 g**	**50 g**
Al (Aluminum)	73	(890)	692	(20)	22,436
Sb (Antimony)	----	(9)	----	(10)	ND
As (Arsenic)	----	(20)	----	(20)	6.63
Ba (Barium)	9,970	(50)	175	(5)	1,103
Be (Beryllium)	----	----	----	----	0.30
B (Boron)	(53)	(150)	102	(18,000)	(25.8)
Cd (Cadmium)	32	(1)	----	(4)	5.57
Ca (Calcium)	111	(1,100)	563	(180)	49,068
Cr (Chromium)	11	50	79	59,225	40.1
Co (Cobalt)	----	(7)	----	(10)	3.22
Cu (Copper)	(6)	121,415	63,169	108	840
Fe (Iron)	64	(3,800)	2,699	(4,700)	9,903
Pb (Lead)	753	(14,230)	119,344	269	126
Mg (Magnesium)	47	(150)	(80)	(50)	4,302
Mn (Manganese)	(1)	(40)	17	(30)	200
Hg (Mercury)	----	(1)	(2)	(10)	4.78
Mo (Molybdenum)	----	(20)	(32)	----	10.5
Ni (Nickel)	(2)	343	194	41,975	20.4
P (Phosphorus)	----	----	----	----	----
K (Potassium)	8,710	(640)	----	(49,000)	2,657
Se (Selenium)	(3)	----	----	(4)	8.38
Si (Silicon)	----	----	----	----	(609)
Ag (Silver)	----	9	56	(1)	72.1
Na (Sodium)	91	(18,000)	1,576	(23,000)	1,002
Sr (Strontium)	(90)	(30)	----	(1)	420
Tl (Thallium)	(40)	(30)	----	(20)	ND
Sn (Tin)	(100)	(38,000)	----	(120)	----
Ti (Titanium)	(2)	(70)	----	(2)	----
V (Vanadium)	----	(1)	----	(20)	39.2
Zn (Zinc)	737,431	(40)	183	----	1,121

All values expressed in mg/Kg, parts per million (ppm) unless otherwise noted.

TCLP Metals - Method 1311

Metal Conc. in mg/L	Soil from Superfund Site CRM202-225	Soil from Superfund Site CRM204-225	Ash from Incinerator CRM205-225	Soil from Superfund Site CRM206-225	Soil from Superfund Site CRM207-225	TCLP Metals in Soil CRM208-225
Metal	**225 g**	**225 g**	**225 g**	**225 g**	**225 g**	**225 g**
As (Arsenic)	1.44	0.82	89.5	13.9	9.51	3.93
Ba (Barium)	5.85	(0.04)	0.44	0.38	0.40	32.8
Cd (Cadmium)	19.6	14.4	144	8.3	7.45	46.7
Cr (Chromium)	11.1	4.46	12.7	0.13	1.36	0.87
Pb (Lead)	48.5	10.7	155	2.16	2.76	2.14
Hg (Mercury)	5.58	(< 0.0025)	ND	0.65	0.02	0.62
Se (Selenium)	1.38	Trace	ND	20.5	20.8	ND
Ag (Silver)	5.01	(< 0.1)	ND	1.04	0.99	ND

NOTES:
1. These values are as extracted into Fluid #1.
2. All values expressed in mg/L, parts per million (ppm) unless otherwise noted.
3. Values in parenthesis are not certified and are given for information only.
4. ND is not detected.

Solid Matrix Standards continued on next page

These products do not require Hazardous Shipping Fee at this time.

Metals in Soil

Metals Conc. (in mg/Kg) Metal	Sewage Sludge Amended Soil CRM005-050 50g	Soil/ Sediment #4 CRM008-050 50g	Dry Soil #2 Certified pH 2.96 CRM020-050 ** 50g	Dry Soil #3 CRM021-100 100g	Dry soil #5 plus Cyanide CRM022-030 30g	Metals in Soil CRM028-050 50g
Al (Aluminum)	15,333	23,906	2,755	2,725	10,060	7,562
Sb (Antimony)	----	(3)	8.38	4,955	(<0.2)	----
As (Arsenic)	7	14	400	25	5	3.83
Ba (Barium)	853	54	24.8	586	109	73.2
Be (Beryllium)	1	1	----	----	0.5	0.38
B (Boron)	----	(27)	----	----	(16)	ND
Cd (Cadmium)	14	(1)	15.4	1	3	0.50
Ca (Calcium)	119,477	2,935	25,584	5,426	27,242	5,883
Cr (Chromium)	41	48	13.6	11	19	19.0
Co (Cobalt)	6	11	4.51	(3)	6	4.30
Cu (Copper)	465	36	729	4,792	12	8.51
Fe (Iron)	12,650	33,042	191,706	6,481	13,555	10,000
Pb (Lead)	89	95	5,111	(144,742)	415	10.4
Mg (Magnesium)	6,706	6,742	2,687	(2,367)	9,524	2,995
Mn (Manganese)	172	261	945	174	318	209
Hg (Mercury)	3	1	1.12	5	(0.02)	----
Mo (Molybdenum)	14	(2)	----	----	(<1)	----
Ni (Nickel)	26	26	16.9	13	16	13.4
P (Phosphorus)	(10,071)	----	----	----	----	----
K (Potassium)	6,229	3,948	(857)	1,006	3,170	2,045
Se (Selenium)	20	(1)	6.57	----	(0.3)	ND
Si (Silicon)	----	(471)	----	----	(80)	----
Ag (Silver)	36	(1)	38.5	7	(<0.5)	----
Na (Sodium)	2,488	8,706	(79.2)	380	268	3.31
Sr (Strontium)	----	42	(24.7)		(54)	ND
Tl (Thallium)	(2)	(<1)	5.91	(<1)	(<0.2)	----
Sn (Tin)	----	----	----	(304)	----	----
Ti (Titanium)	----	----	----	----	----	----
V (Vanadium)	109	44	6.47	(8.7)	23	19.2
Zn (Zinc)	625	134	3,011	546	46	75.0
pH	----	----	2.96	----	----	----
CN	----	----	----	----	26.6	----

Continued (in mg/Kg) Metal	Sediment, + CN CRM015-050 50g	Sediment CRM016-050 50g	Soil CRM023-050 50g	Soil CRM025-050 50g	Soil CRM026-050 50g	Soil CRM027-050 50g	Soil CRM024-050 50g
Al (Aluminum)	9,200	8,920	8,472	7,637	17,730	9,149	8,681
Sb (Antimony)	(ND)	(ND)	----	(<3.2)	(<3.2)	----	(1.17)
As (Arsenic)	6.6	6.48	380	339	5.64	12.5	3.42
Ba (Barium)	83.0	79.3	75.5	1,839	214	167	79.6
Be (Beryllium)	0.47	0.49	0.4	0.33	18.0	----	0.43
B (Boron)	(8.6)	(13.0)	(11.2)	(17.2)	(25.4)	2.74	7.22
Cd (Cadmium)	(ND)	0.47	0.9	369	11.7	11.9	2.15
Ca (Calcium)	23,463	22,646	5,425	28,320	6,221	5,963	5,534
Cr (Chromium)	14.3	14.5	31.1	441	27.2	27.0	25.4
Co (Cobalt)	6.04	5.96	8.9	4.07	6.77	4.77	----
Cu (Copper)	16.1	15.5	4.7	7.76	18.8	9.79	8.70
Fe (Iron)	17,070	16,831	10,678	9,439	21,906	11,299	10,196
Pb (Lead)	15.04	14.1	213	1,447	25.6	51.7	15.7
Mg (Magnesium)	13,611	13,246	3,064	4,376	2,837	2,786	2,945
Mn (Manganese)	183.4	180.0	206	173	633	258	199
Hg (Mercury)	0.10	0.11	77.8	99.8	2.42	3.85	0.71
Mo (Molybdenum)	1.16	(0.97)	----	----	----	----	0.58
Ni (Nickel)	17.5	16.7	11.0	12.2	14.4	10.7	15.0
P (Phosphorus)	----	----		----	----	----	----
K (Potassium)	2,074	1,958	2,231	1,992	3,600	2,115	2,102
Se (Selenium)	(1.0)	(1.0)	116	518	(1.86)	13.8	(0.54)
Si (Silicon)	(491)	(347)	(352)	(171)	(166)	387	(404)
Ag (Silver)	(ND)	(0.7)	132	(0.57)	5.90	----	13.3
Na (Sodium)	400	292.0	295	313	199	241	287
Sr (Strontium)	(62)	(61)	(32)	(408)	38.4	42.7	35.4
Tl (Thallium)	(ND)	(4.6)	111	(<4.8)	(<4.8)	----	(13.6)
Sn (Tin)	----	----	----	----	----	----	----
Ti (Titanium)	----	----	----	----	----	----	----
V (Vanadium)	22.1	22.5	21.7	19.3	32.0	21.8	20.8
Zn (Zinc)	69.9	69.7	93.8	51.8	140	51.5	37.3
pH	----	----	----	----	----	----	----
CN	6.04	----	----	----	----	----	----

Solid Waste Analysis

Solid Matrix Standards

Metals in Ashes

Metals Conc. (in mg/Kg) Metal	Ash #1 CRM001-100 100 g	Ash #2 CRM012-100 100 g	Ash #3 CRM019-050 100 g	Ash #4 CRM205-225 100 g
Al (Aluminum)	----	2,160	(2, 759)	----
Sb (Antimony)	----	----	(223)	----
As (Arsenic)	----	----	78	90
Ba (Barium)	428	19	342	0.4
Be (Beryllium)	----	----	(2)	----
B (Boron)	----	----	(336)	----
Cd (Cadmium)	----	362	432	147
Ca (Calcium)	----	2,111	(51,949)	----
Cr (Chromium)	30	161,520	55	13
Co (Cobalt)	----	(22)	(26)	----
Cu (Copper)	40	3,015	279	----
Fe (Iron)	(16,300)	28,664	(12,693)	----
Pb (Lead)	----	120	4,414	155
Mg (Magnesium)	----	1,506	6,307	----
Mn (Manganese)	(300)	202	(480)	----
Hg (Mercury)	----	----	(2)	ND
Mo (Molybdenum)	----	----	(26)	----
Ni (Nickel)	20	13,279	22	----
P (Phosphorus)	----	----	----	----
K (Potassium)	----	73,324	(49,344)	----
Se (Selenium)	----	----	2	ND
Ag (Silver)	----	55	6	ND
Na (Sodium)	----	29,200	(50,522)	----
Sr (Strontium)	(1,016)	(10)	(173)	----
Tl (Thallium)	----	----	(42)	----
Sn (Tin)	----	(2,055)	(410)	----
Ti (Titanium)	(465)	(20)	(2,870)	----
V (Vanadium)	----	(52)	29	----
Zn (Zinc)	----	635	22,217	----

NOTES:
1. All values expressed in mg/Kg, parts per million (ppm) unless otherwise noted.
2. Values in parenthesis are not certified and are given for information only.
3. ND is not detected.

** Values certified by analysis from 260 independent laboratories

Lead Reference Materials

- Natural matrix, not spiked or fortified
- Samples tested & suitable for lead abatement program

Paint Sludge
CRM006-050 50 g
Certified lead value 753 mg/kg

Paint Waste
CRM013-050 50 g
Certified lead value 643 mg/kg

Dust
CRM014-050 50 g
Certified lead value 1,914 mg/kg

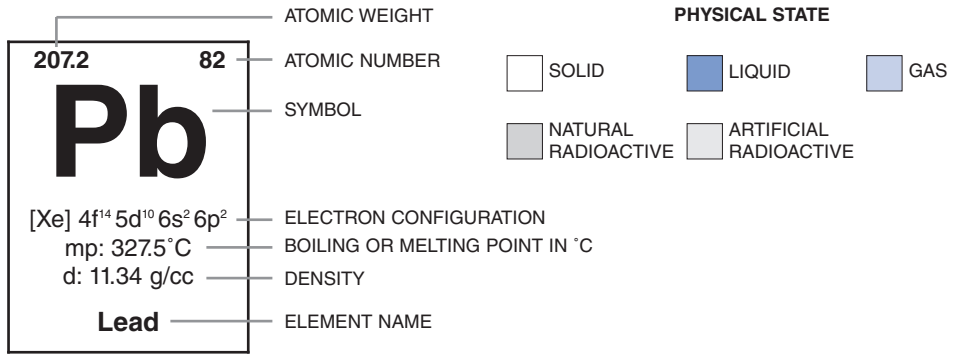
Metals in Particulates & Water Treatment Media

Metals Conc. in mg/Kg (in mg/Kg) Metal	Activated Charcoal Filter CRM002-100 100 g	Diatomaceous Earth Filter CRM004-100 100 g	Paint Chips CRM013-050 50 g	Baghouse Dust CRM014-050 50 g
Al (Aluminum)	(1,800)	(29,000)	(1,200)	(6,000)
Sb (Antimony)	(2)	(5)	(20)	(20)
As (Arsenic)	(30)	----	(1)	(2)
Ba (Barium)	(80)	1,595	(1,200)	(1,930)
Be (Beryllium)	----	----	----	----
B (Boron)	(80)	(1,160)	12	(50)
Cd (Cadmium)	(1)	2	38	510
Ca (Calcium)	(980)	(28,000)	(1,500)	(3,900)
Cr (Chromium)	36,339	21	618	2,228
Co (Cobalt)	(10)	(140)	(10)	(10)
Cu (Copper)	96,935	(20)	(30)	(110)
Fe (Iron)	(1,150)		(1,400)	(5,860)
Pb (Lead)	(5)	11,871	643	1,914
Mg (Magnesium)	(190)	(17,000)	(430)	(1,100)
Mn (Manganese)	(8)	(90)	(120)	(110)
Hg (Mercury)	(5)	(3)	----	(2)
Mo (Molybdenum)	----	(4)	(1)	(30)
Ni (Nickel)	(30)	(140)	(10)	(10)
P (Phosphorus)	----	----	----	----
K (Potassium)	(490)	----	(170)	(340)
Se (Selenium)	(4)	(2,000)	----	(1)
Ag (Silver)	18	(1)	----	(10)
Na (Sodium)	(480)	(4,200)	(310)	(780)
Sr (Strontium)	(110)	(80)	(950)	(1,900)
Tl (Thallium)	(20)	(30)	(4)	(10)
Sn (Tin)	(120)	(580)	(80)	(140)
Ti (Titanium)	(210)	(100)	(70)	(130)
V (Vanadium)	(40)	(28)	(1)	(2)
Zn (Zinc)	----	(8,500)	(2,370)	(3,150)

NOTES:
1. All values expressed in mg/Kg, parts per million (ppm) unless otherwise noted
2. Values in parenthesis are not certified and are given for information only.
3. ND is not detected.

These products do not require Hazardous Shipping Fee at this time.

Periodic Table



1 IA	2 IIA			5 VB	6 VIB	7 VIIB	8 VIII	9 VIII
1.00794 1 **H** 1s bp: -259.3˚C d: 0.088 g/l **Hydrogen**								
6.941 3 **Li** [He] 2s mp: 180.5˚C d: 0.53 g/cc **Lithium**	9.012182 4 **Be** [He] $2s^2$ mp: 1287˚C d: 1.848 g/cc **Beryllium**							
22.989768 11 **Na** [Ne] 3s mp: 97.72˚C d: 0.968 g/cc **Sodium**	24.3050 12 **Mg** [Ne] $3s^2$ mp: 650˚C d: 1.738 g/cc **Magnesium**							
39.0983 19 **K** [Ar] 4s mp: 63.3˚C d: 0.856 g/cc **Potassium**	40.078 20 **Ca** [Ar] $4s^2$ mp: 842˚C d: 1.54 g/cc **Calcium**	44.955910 21 **Sc** [Ar] 3d $4s^2$ mp: 1541˚C d: 2.989 g/cc **Scandium**	47.88 22 **Ti** [Ar] $3d^2$ $4s^2$ mp: 1668˚C d: 4.506 g/cc **Titanium**	50.9415 23 **V** [Ar] $3d^3$ $4s^2$ mp: 1910˚C d: 6.11 g/cc **Vanadium**	51.9961 24 **Cr** [Ar] $3d^5$ 4s mp: 1907˚C d: 7.19 g/cc **Chromium**	54.93805 25 **Mn** [Ar] $3d^5$ $4s^2$ mp: 1246˚C d: 7.3 g/cc **Manganese**	55.847 26 **Fe** [Ar] $3d^6$ $4s^2$ mp: 1538˚C d: 7.87 g/cc **Iron**	58.93320 27 **Co** [Ar] $3d^7$ $4s^2$ mp: 1495˚C d: 8.92 g/cc **Cobalt**
85.4678 37 **Rb** [Kr] 5s mp: 39˚C d: 1.532 g/cc **Rubidium**	87.62 38 **Sr** [Kr] $5s^2$ mp: 777˚C d: 2.64 g/cc **Strontium**	88.90585 39 **Y** [Kr] 4d $5s^2$ mp: 1522˚C d: 4.47 g/cc **Yttrium**	91.224 40 **Zr** [Kr] $4d^2$ $5s^2$ mp: 1855˚C d: 6.52 g/cc **Zirconium**	92.9064 41 **Nb** [Kr] $4d^4$ 5s mp: 2477˚C d: 8.57 g/cc **Niobium**	95.94 42 **Mo** [Kr] $4d^5$ 5s mp: 2623˚C d: 10.22 g/cc **Molybdenum**	98 43 **Tc** [Kr] $4d^5$ $5s^2$ mp: 2157˚C d: 11.0 g/cc **Technetium**	101.07 44 **Ru** [Kr] $4d^7$ 5s mp: 2334˚C d: 12.1 g/cc **Ruthenium**	102.9055 45 **Rh** [Kr] $4d^8$ 5s mp: 1964˚C d: 12.41 g/cc **Rhodium**
132.9054 55 **Cs** [Xe] 6s mp: 28.4˚C d: 1.93 g/cc **Cesium**	137.327 56 **Ba** [Xe] $6s^2$ mp: 727˚C d: 3.62 g/cc **Barium**	57-71 **La-Lu**	178.49 72 **Hf** [Xe] $4f^{14}$ $5d^2$ $6s^2$ mp: 2227˚C d: 13.31 g/cc **Hafnium**	180.9479 73 **Ta** [Xe] $4f^{14}$ $5d^3$ $6s^2$ mp: 2996˚C d: 16.4 g/cc **Tantalum**	183.84 74 **W** [Xe] $4f^{14}$ $5d^4$ $6s^2$ mp: 3410˚C d: 19.3 g/cc **Tungsten**	186.207 75 **Re** [Xe] $4f^{14}$ $5d^5$ $6s^2$ mp: 3180˚C d: 20.8 g/cc **Rhenium**	190.23 76 **Os** [Xe] $4f^{14}$ $5d^6$ $6s^2$ mp: 3045˚C d: 22.61 g/cc **Osmium**	192.22 77 **Ir** [Xe] $4f^{14}$ $5d^7$ $6s^2$ mp: 2410˚C d: 22.5 g/cc **Iridium**
223.0197 87 **Fr** [Rn] 7s mp: 27˚C d: 2.29 g/cc **Francium**	226.0254 88 **Ra** [Rn] $7s^2$ mp: 700˚C d: 2.29 g/cc **Radium**	89-103 **Ac-Lr**	261.1087 104 **Rf** [Rn] $5f^{14}$ $6d^2$ $7s^2$ mp: none d: none **Rutherfordium**	262.1138 105 **Db** [Rn] $5f^{14}$ $6d^3$ $7s^2$ mp: none d: none **Dubnium**	263.1182 106 **Sg** [Rn] $5f^{14}$ $6d^4$ $7s^2$ mp: none d: none **Seaborgium**	262.1229 107 **Bh** [Rn] $5f^{14}$ $6d^5$ $7s^2$ mp: none d: none **Bohrium**	265 108 **Hs** [Rn] $5f^{14}$ $6d^6$ $7s^2$ mp/bp: none d: none **Hassium**	266 109 **Mt** [Rn] $5f^{14}$ $6d^7$ $7s^2$ mp/bp: none d: none **Meitnerium**

138.9055 57 **La** [Xe] 5d $6s^2$ mp: 920˚C d: 6.17 g/cc **Lanthanum**	140.115 58 **Ce** [Xe] $4f^2$ $6s^2$ mp: 798˚C d: 6.77 g/cc **Cerium**	140.90765 59 **Pr** [Xe] $4f^3$ $6s^2$ mp: 935˚C d: 6.77 g/cc **Praseodymium**	144.24 60 **Nd** [Xe] $4f^4$ $6s^2$ mp: 1021˚C d: 7.00 g/cc **Neodymium**	146.9151 61 **Pm** [Xe] $4f^5$ $6s^2$ mp: 1080˚C d: 7.22 g/cc **Promethium**	150.36 62 **Sm** [Xe] $4f^6$ $6s^2$ mp: 1072˚C d: 7.54 g/cc **Samarium**	151.965 63 **Eu** [Xe] $4f^7$ $6s^2$ mp: 822˚C d: 5.25 g/cc **Europium**
227.0278 89 **Ac** [Rn] 6d $7s^2$ mp: 1050˚C d: 10.07 g/cc **Actinium**	232.0381 90 **Th** [Rn] $6d^2$ $7s^2$ mp: 1750˚C d: 11.72 g/cc **Thorium**	231.0359 91 **Pa** [Rn] $5f^2$ 6d $7s^2$ mp: 1560˚C d: 15.37 g/cc **Protactinium**	238.0289 92 **U** [Rn] $5f^3$ 6d $7s^2$ mp: 1132.3˚C d: 19.07 g/cc **Uranium**	237.0482 93 **Np** [Rn] $5f^4$ 6d $7s^2$ mp: 637˚C d: 20.45 g/cc **Neptunium**	244.0642 94 **Pu** [Rn] $5f^6$ $7s^2$ mp: 641˚C d: 19.86 g/cc **Plutonium**	243.0614 95 **Am** [Rn] $5f^7$ $7s^2$ mp: 1173˚C d: 13.67 g/cc **Americium**

Oxidation States listed on following page

# of Elements

10 VIII	11 IB	12 IIB	13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	18 VIIIA
								4.002602 **2** **He** $1s^2$ bp: -268.9˚C d: 0.179 g/l **Helium**
			10.811 **5** **B** [He] $2s^2 2p$ mp: 2075˚C d: 2.34 g/cc **Boron**	12.011 **6** **C** [He] $2s^2 2p^2$ mp: 3650˚C d: 2.26 g/cc **Carbon**	14.00674 **7** **N** [He] $2s^2 2p^3$ bp: -195.8˚C d: 1.25 g/l **Nitrogen**	15.9994 **8** **O** [He] $2s^2 2p^4$ bp: -183.0˚C d: 1.404 g/l **Oxygen**	18.9984032 **9** **F** [He] $2s^2 2p^5$ bp: -188.1˚C d: 1.696 g/l **Fluorine**	20.1797 **10** **Ne** [He] $2s^2 2p^6$ bp: -246.1˚C d: 0.8999 g/l **Neon**
			26.981539 **13** **Al** [Ne] $3s^2 3p$ mp: 660.4˚C d: 2.70 g/cc **Aluminum**	28.0855 **14** **Si** [Ne] $3s^2 3p^2$ mp: 1414˚C d: 2.33 g/cc **Silicon**	30.973762 **15** **P** [Ne] $3s^2 3p^3$ mp: 44.2˚C d: 1.82 g/cc **Phosphorus**	32.066 **16** **S** [Ne] $3s^2 3p^4$ mp: 115.21˚C d: 2.07 g/cc **Sulfur**	35.4527 **17** **Cl** [Ne] $3s^2 3p^5$ bp: -34.0˚C d: 2.95 g/l **Chlorine**	39.948 **18** **Ar** [Ne] $3s^2 3p^6$ bp: -185.9˚C d: 1.784 g/l **Argon**
58.6934 **28** **Ni** [Ar] $3d^8 4s^2$ mp: 1455˚C d: 8.908 g/cc **Nickel**	63.546 **29** **Cu** [Ar] $3d^{10} 4s$ mp: 1083.0˚C d: 8.84 g/cc **Copper**	65.38 **30** **Zn** [Ar] $3d^{10} 4s^2$ mp: 419.5˚C d: 7.14 g/cc **Zinc**	69.723 **31** **Ga** [Ar] $3d^{10} 4s^2 4p$ mp: 29.8˚C d: 5.91 g/cc **Gallium**	72.61 **32** **Ge** [Ar] $3d^{10} 4s^2 4p^2$ mp: 937.2˚C d: 5.32 g/cc **Germanium**	74.92159 **33** **As** [Ar] $3d^{10} 4s^2 4p^3$ 818˚C subl. d: 5.778 g/cc **Arsenic**	78.96 **34** **Se** [Ar] $3d^{10} 4s^2 4p^4$ mp: 217˚C d: 4.28 g/cc **Selenium**	79.904 **35** **Br** [Ar] $3d^{10} 4s^2 4p^5$ bp: 59.47˚C d: 3.10 g/cc **Bromine**	83.80 **36** **Kr** [Ar] $3d^{10} 4s^2 4p^6$ bp: -157.36˚C d: 3.677 g/cL **Krypton**
106.42 **46** **Pd** [Kr] $4d^{10}$ mp: 1554.9˚C d: 12.02 g/cc **Palladium**	107.868 **47** **Ag** [Kr] $4d^{10} 5s$ mp: 961.8˚C d: 10.5 g/cc **Silver**	112.411 **48** **Cd** [Kr] $4d^{10} 5s^2$ mp: 321.1˚C d: 8.69 g/cc **Cadmium**	114.818 **49** **In** [Kr] $4d^{10} 5s^2 5p$ mp: 156.6˚C d: 7.31 g/cc **Indium**	118.710 **50** **Sn** [Kr] $4d^{10} 5s^2 5p^2$ mp: 232.0˚C d: 7.265 g/cc **Tin**	121.75 **51** **Sb** [Kr] $4d^{10} 5s^2 5p^3$ mp: 630.7˚C d: 6.68 g/cc **Antimony**	127.60 **52** **Te** [Kr] $4d^{10} 5s^2 5p^4$ mp: 449.5˚C d: 6.24 g/cc **Tellurium**	126.9045 **53** **I** [Kr] $4d^{10} 5s^2 5p^5$ mp: 113.7˚C d: 4.933 g/cc **Iodine**	131.29 **54** **Xe** [Kr] $4d^{10} 5s^2 5p^6$ mp: -111.0˚C d: 5.761 g/l **Xenon**
195.08 **78** **Pt** [Xe] $4f^{14} 5d^9 6s$ mp: 1768.4˚C d: 21.45 g/cc **Platinum**	196.96654 **79** **Au** [Xe] $4f^{14} 5d^{10} 6s$ mp: 1064.2˚C d: 19.32 g/cc **Gold**	200.59 **80** **Hg** [Xe] $4f^{14} 5d^{10} 6s^2$ bp: 356.73˚C d: 13.534 g/cc **Mercury**	204.3833 **81** **Tl** [Xe] $4f^{14} 5d^{10} 6s^2 6p$ mp: 303.5˚C d: 11.85 g/cc **Thallium**	207.2 **82** **Pb** [Xe] $4f^{14} 5d^{10} 6s^2 6p^2$ mp: 327.5˚C d: 11.34 g/cc **Lead**	208.98037 **83** **Bi** [Xe] $4f^{14} 5d^{10} 6s^2 6p^3$ mp: 271.4˚C d: 9.79 g/cc **Bismuth**	208.9824 **84** **Po** [Xe] $4f^{14} 5d^{10} 6s^2 6p^4$ mp: 254˚C d: 9.20 g/cc **Polonium**	209.9871 **85** **At** [Xe] $4f^{14} 5d^{10} 6s^2 6p^5$ mp: 302˚C d: none **Astatine**	222.0176 **86** **Rn** [Xe] $4f^{14} 5d^{10} 6s^2 6p^6$ mp: -61.8˚C d: 9.72 g/cc **Radon**
269 **110** **Uun** **Ununnilium**	272 **111** **Uuu** **Unununium**	277 **112** **Uub** **Ununbium**						

157.25 **64** **Gd** [Xe] $4f^7 5d 6s^2$ mp: 1311˚C d: 7.89 g/cc **Gadolinium**	158.92534 **65** **Tb** [Xe] $4f^9 6s^2$ mp: 1356˚C d: 8.27 g/cc **Terbium**	162.50 **66** **Dy** [Xe] $4f^{10} 6s^2$ mp: 1409˚C d: 8.56 g/cc **Dysprosium**	164.93032 **67** **Ho** [Xe] $4f^{11} 6s^2$ mp: 1474˚C d: 8.78 g/cc **Holmium**	167.26 **68** **Er** [Xe] $4f^{12} 6s^2$ mp: 1529˚C d: 9.05 g/cc **Erbium**	168.9342 **69** **Tm** [Xe] $4f^{13} 6s^2$ mp: 1545˚C d: 9.32 g/cc **Thulium**	173.04 **70** **Yb** [Xe] $4f^{14} 6s^2$ mp: 819˚C d: 6.97 g/cc **Ytterbium**	174.967 **71** **Lu** [Xe] $4f^{14} 5d 6s^2$ mp: 1663˚C d: 9.84 g/cc **Lutetium**	
247.0703 **96** **Cm** [Rn] $5f^7 6d 7s^2$ mp: 1345˚C d: 13.51 g/cc **Curium**	247.0703 **97** **Bk** [Rn] $5f^9 7s^2$ mp: 986˚C d: 14.78 g/cc **Berkelium**	251.0796 **98** **Cf** [Rn] $5f^{10} 7s^2$ mp: 900˚C d: 15.1 g/cc **Californium**	252.0829 **99** **Es** [Rn] $5f^{11} 7s^2$ mp: 860˚C d: 8.84 g/cc **Einsteinium**	257.0951 **100** **Fm** [Rn] $5f^{12} 7s^2$ mp: none d: none **Fermium**	258.0986 **101** **Md** [Rn] $5f^{13} 7s^2$ mp: none d: none **Mendelevium**	259.1009 **102** **No** [Rn] $5f^{14} 7s^2$ mp: none d: none **Nobelium**	262.11 **103** **Lr** [Rn] $5f^{14} 6d 7s^2$ mp: none d: none **Lawrencium**	

Table of Element Symbol, Oxidation States and Atomic Weights

Oxidation States (bold indicates most stable state, -- = unknown)
Atomic Mass based on the $^{12}C=12$

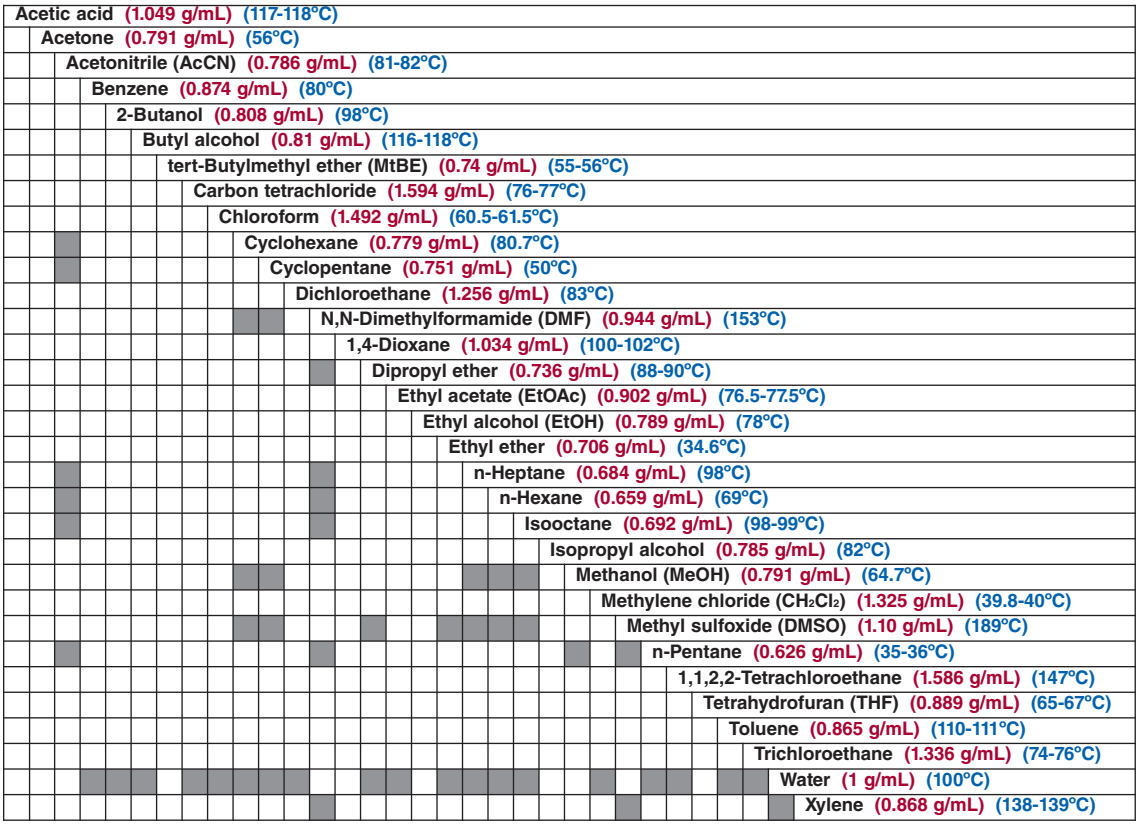
Element	Symbol	Oxidation States	Atomic Weight
Actinium	Ac	3	227.0278
Aluminum	Al	3	26.981539
Americium	Am	**3**,4,5,6	243.0614
Antimony	Sb	±**3**,5	121.757
Argon	Ar		39.948
Arsenic	As	±**3**,5	74.92159
Astatine	At	±**1**,3,5,7	209.9871
Barium	Ba	2	137.327
Berkelium	Bk	**3**,4	247.0703
Beryllium	Be	2	9.012182
Bismuth	Bi	**3**,5	208.98037
Bohrium	Bh	--	262.1229
Boron	B	3	10.811
Bromine	Br	±**1**,5	79.904
Cadmium	Cd	2	112.411
Calcium	Ca	2	40.078
Californium	Cf	3	251.0796
Carbon	C	2,±**4**	12.011
Cerium	Ce	**3**,4	140.115
Cesium	Cs	1	132.90543
Chlorine	Cl	±**1**,3,5,7	35.4527
Chromium	Cr	2,**3**,6	51.9961
Cobalt	Co	**2**,3	58.93320
Copper	Cu	1,**2**	63.546
Curium	Cm	3	247.0703
Dubnium	Db	--	262.1138
Dysprosium	Dy	3	162.50
Einsteinium	Es	3	252.0829
Erbium	Er	3	167.26
Europium	Eu	2,**3**	151.96
Fermium	Fm	3	257.0951
Fluorine	F	-1	18.9984032
Francium	Fr	1	223.0197
Gadolinium	Gd	3	157.25
Gallium	Ga	3	69.723
Germanium	Ge	4	72.61
Gold	Au	1,**3**	196.96654
Hafnium	Hf	4	178.49
Hassium	Hs	--	265
Helium	He		4.002602
Holmium	Ho	3	164.93032
Hydrogen	H	1	1.00794
Indium	In	3	114.818
Iodine	I	±**1**,5,7	126.9045
Iridium	Ir	2,3,**4**,6	192.22
Iron	Fe	2,**3**	55.847
Krypton	Kr		83.80
Lanthanum	La	3	138.9055
Lawrencium	Lr	3	262.11
Lead	Pb	**2**,4	207.2
Lithium	Li	1	6.941
Lutetium	Lu	3	174.967
Magnesium	Mg	2	24.3050
Manganese	Mn	**2**,3,4,6,7	54.93805
Meitnerium	Mt	--	266
Mendelevium	Md	2,3	258.0986
Mercury	Hg	1,**2**	200.59
Molybdenum	Mo	2,3,4,5,**6**	95.94
Neodymium	Nd	3	144.24
Neon	Ne		20.1797
Neptunium	Np	3,4,**5**,6	237.0482
Nickel	Ni	**2**,3	58.6934
Niobium	Nb	3,**5**	92.9064
Nitrogen	N	2,±**3**,4,5	14.00674
Nobelium	No	2,3	259.1009
Osmium	Os	2,3,**4**,6,8	190.23
Oxygen	O	-2	15.9994
Palladium	Pd	**2**,4	106.42
Phosphorus	P	±3,4,**5**	30.973762
Platinum	Pt	2,**4**	195.08
Plutonium	Pu	3,**4**,5,6	244.0642
Polonium	Po	2,**4**	208.9871
Potassium	K	1	39.0983
Praseodymium	Pr	3,**4**	140.9151
Promethium	Pm	3	146.9151
Protactinium	Pa	4,**5**	231.0359
Radium	Ra	2	226.0254
Radon	Rn		222.0176
Rhenium	Re	-1,2,4,6,**7**	186.207
Rhodium	Rh	2,**3**,4	102.9055
Rubidium	Rb	1	85.4678
Ruthenium	Ru	2,3,**4**,6,8	101.07
Rutherfordium	Rf	4	261.1087
Samarium	Sm	2,**3**	150.36
Scandium	Sc	3	44.95591
Seaborgium	Sg	--	263.1182
Selenium	Se	-2,**4**,6	78.96
Silicon	Si	4	28.0855
Silver	Ag	1	107.8682
Sodium	Na	1	22.989768
Strontium	Sr	2	87.62
Sulfur	S	±2,4,**6**	32.066
Tantalum	Ta	5	180.9479
Technetium	Tc	7	98
Tellurium	Te	-2,**4**,6	127.6
Terbium	Tb	**3**,4	158.92534
Thallium	Tl	**1**,3	204.3833
Thorium	Th	4	232.0381
Thulium	Tm	2,**3**	168.9342
Tin	Sn	2,**4**	118.710
Titanium	Ti	3,**4**	47.88
Tungsten	W	2,3,4,5,**6**	183.84
Uranium	U	3,4,5,**6**	238.0289
Vanadium	V	2,3,4,**5**	50.9415
Xenon	Xe		131.29
Ytterbium	Yb	2,**3**	173.04
Yttrium	Y	3	88.90585
Zinc	Zn	2	65.38
Zirconium	Zr	4	91.224

General Constants

Universal Gas Constant	R = 0.0821(Atm)(L)/(K)(mole)
Acceleration Due to Gravity	g = 32.17 ft/sec^2, 9.8 m/sec^2
Avogadro's Constant	N = 6.023 x 10^{23} molecules/mole
Speed of Light	c = 186,282 miles/sec, 3 x 10^{10} cm/sec
Heat of Fusion (water 1 atm, 0ºC)	ΔH_{fus} = 79.7 cal/g
Heat of Vaporization (water 1 atm, 100ºC)	ΔH_{vap} = 540 cal/g
Volume of Perfect Gas	22.4L/mol at 0ºC, 760 torr
Faraday's Constant	F = 96485.31 C/mol
Planck's Constant	h = 6.626 x 10^{-27} erg/sec
Bragg's Law	2d nλ = 2d sin(θ)
Absolute Zero	-273.15 ºC
Temp. of Liquid Nitrogen	-195.8 ºC

Technical Reference

Solvent Miscibility Table, Density and Boiling Point



☐ Miscible
■ Immiscible

Read down column and across for solvent miscibility

Density@25°C
Boiling Point

Unit Conversions

Temperature		
ºFahrenheit	ºCelsius	(ºF - 32) x 5/9
ºCelsius	ºFahrenheit	(ºC x 9/5) + 32
ºCelsius	ºKelvin	ºC + 273

Mass	
1 ounce	= 28.4 grams
0.03527 grams	= 1 ounces

Liquid Volume		Multiply by
Ounces (US)	Milliliters	29.57
Pints (US)	Liters	0.47
Quarts (US)	Liters	0.95
Gallons (US)	Liters	3.8
Milliliters	Ounces (US)	0.034
Liters	Pints (US)	2.1
Liters	Quarts (US)	1.06
Liters	Gallons (US)	0.26
Cubic Feet	Cubic meters	0.03
Cubic Yards	Cubic meters	0.76

1 ppm = 1 µg/mL (wt. /vol.) and
1 ppm = 1 µg/g (wt./wt.)
1% = 10,000 ppm (parts per million)
1 ppm = 1,000 ppb (parts per billion)
1 ppb = 1,000 ppt (parts per trillion)

1 g = 1,000 mg (milligram)
1 mg = 1,000 µg (microgram)
1 µg = 1,000 ng (nanogram)

1 L = 1,000 mL (milliLiter)
1 mL = 1,000 µL (microLiter)
1 µL = 1,000 nL (nanoLiter)

Abbreviations

AA	Atomic Absorption
ACS	American Chemical Society
ANSI	American National Standards Institute
AOAC	Association of Official Analytical Chemists
APHA	American Public Health Association
ASTM	American Society for Testing Materials
BSI	British Standards Institute
CAS	Chemical Abstracts Service
CI	Color Index
EPA	U.S. Environmental Protection Agency
GLC	Gas Liquid Chromatography
GR	Guaranteed Reagent
ICP	Inductively Coupled Plasma
IR	Infrared
KF	Karl Fischer
meq	Milliequivalent
NF	National Formulary
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety and Health Administration
RFA	Renewable Fuel Association
SPE	Solid Phase Extraction
TLC	Thin Layer Chromatography
USDA	U.S. Department of Agriculture
USP	U.S. Pharmacopoeia

Instrumentation for Analysis

GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectroscopy
GC/FID	Gas Chromatography/Flame Ionization Detector
GC/PID	Gas Chromatography/Photoionization Detector
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/ELCD	Gas Chromatography/Electrolytic Conductivity Detector
GC/NPD	Gas Chromatography/Nitrogen phosphorus Detector
HPLC	High Performance Liquid Chromatography
NPD/TEA	Nitrogen-Phosphorus Detector/Thermal Energy Analyzer with the reductive Hall detector
TCD/FID	Thermal Conductivity Detector/ Flame Ionization Detector
NPD/AFD/TSD	Nitrogen-Phosphorus Detector/Alkali-Flame Detector/Thermionic Specific Detector
NPA/ELCD/FPD	Nitrogen-Phosphorus Detector/ Electrolytic Conductivity Detector/Flame Photometric Detector
HRGC/LRMS	High Resolution Gas Chromatography/Low Resolution Mass Spectrometry
FTIR	Fourier Transform Infrared

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CAS Number Index

CAS Number Index

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Organic Analyte Index

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Company Contact _____

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Email: _____

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AS Tech. Rep.	_____	Product Ordering #	_____
Quote Creation Date	_____	Quoted price $	_____

No. of Comps. ____

Product Description _____

Concentration _____

Solvent / Matrix _____

Requested Quantity

Organic

- ☐ 5 x 1 mL
- ☐ 10 x 1 mL
- ☐ 20 x 1 mL
- ☐ other ___ x ___

Inorganic

- ☐ 1 x 500 mL
- ☐ ___ x 500 mL

	Component (s)	CAS No. (optional)	Concentration (if varied)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Concentration Units

- ☐ ng/mL
- ☐ µg/mL
- ☐ mg/mL
- ☐ wt. %
- ☐ vol. %

Photocopy this form for future use

Quotation Notes _____

_____

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