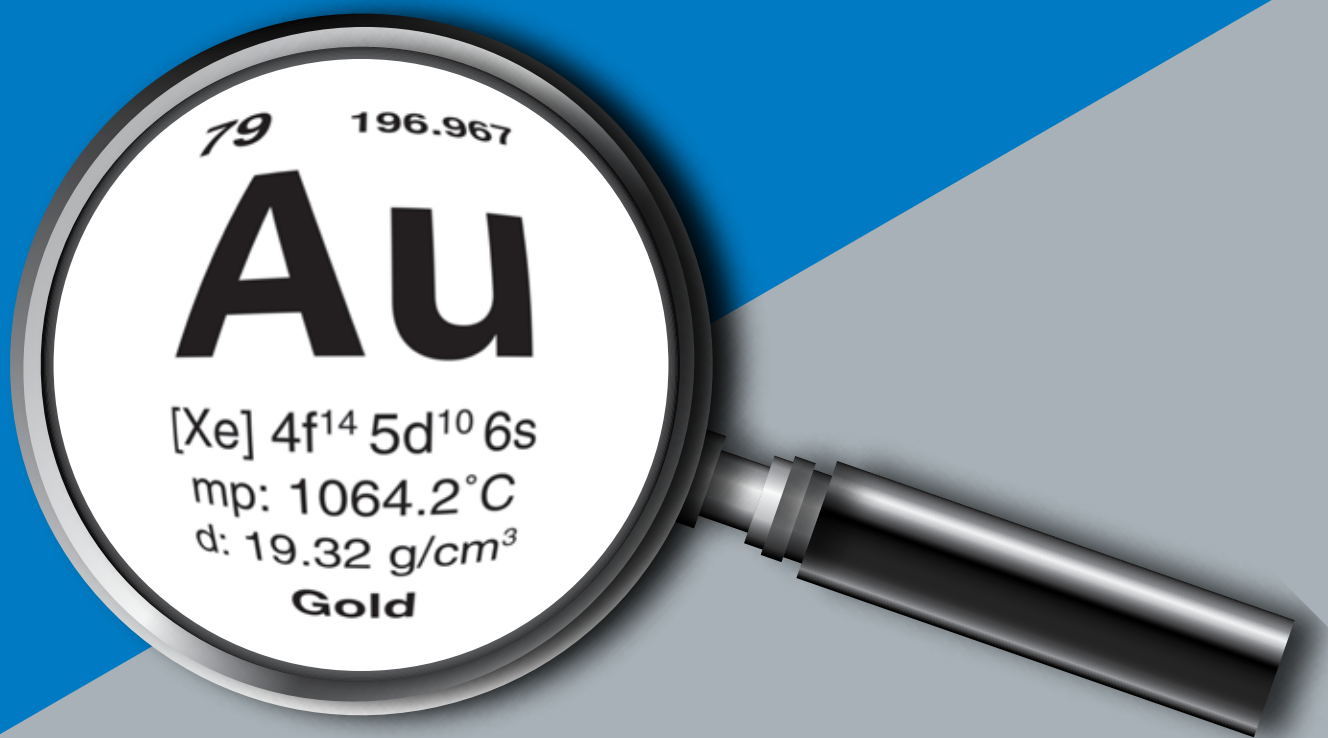


TECHLAB

Matériaux de Référence Certifiés & Equipements de Laboratoire

Inorganic Standards



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and AA Standards

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Wet Chemical / Gravimetric Assay
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- ✓ Reference to NIST Traceability during product
preparation

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Custom Quotation Request Form

Company :

Contact : Job Function:

Address :

Postal Code: Town: Country:

Telephone : FAX :

Email : URL :

Area of Interest :

Product Description :

Concentration :

Matrix :

Concentration Units :

- ng/ml
- µg/ml
- mg/ml
- wt. %
- vol. %

Requested Quantity :

Organic	Inorganic
<input type="checkbox"/> 5 x 1 ml	<input type="checkbox"/> ___ x 500 ml
<input type="checkbox"/> Others __ x __	

Component(s)

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.

Concentration (if various)

-
-
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-
-
-
-

ICP

Single Element

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

**3 Year Minimum Shelf Life on
Single Element ICP Standards**

Single Element ICP						
Element	Starting Material	Matrix	Unit	Concentration		
				1000 µg/mL	10,000 µg/mL	
			Cat. No.	Cat. No.		
Aluminum (Al) Al(NO ₃) ₃ • 9H ₂ O		2-5% Nitric acid	50 mL	-----	--	ICP-01N-10X-0.5
			100 mL	ICP-01N-1		ICP-01N-10X-1
			500 mL	ICP-01N-5		ICP-01N-10X-5
Antimony (Sb) Sb		2-5% Nitric acid tr. Tartaric acid	50 mL	-----	--	ICP-02N-10X-0.5
			100 mL	ICP-02N-1		ICP-02N-10X-1
			500 mL	ICP-02N-5		ICP-02N-10X-5
Arsenic (As) As		2-5% Nitric acid	50 mL	-----	--	ICP-03N-10X-0.5
			100 mL	ICP-03N-1		ICP-03N-10X-1
			500 mL	ICP-03N-5		ICP-03N-10X-5
Barium (Ba) Ba(NO ₃) ₂		2-5% Nitric acid	50 mL	-----	--	ICP-04N-10X-0.5
			100 mL	ICP-04N-1		ICP-04N-10X-1
			500 mL	ICP-04N-5		ICP-04N-10X-5
Beryllium (Be) BeO(C ₂ H ₃ O ₂) ₆		2-5% Nitric acid	50 mL	-----	--	ICP-05N-10X-0.5
			100 mL	ICP-05N-1		ICP-05N-10X-1
			500 mL	ICP-05N-5		ICP-05N-10X-5
Bismuth (Bi) Bi		2-10% Nitric acid	50 mL	-----	--	ICP-06N-10X-0.5
			100 mL	ICP-06N-1		ICP-06N-10X-1
			500 mL	ICP-06N-5		ICP-06N-10X-5
Boron (B) H ₃ BO ₃		Water tr. NH ₄ OH	50 mL	-----	--	ICP-07W-10X-0.5
			100 mL	ICP-07W-1		ICP-07W-10X-1
			500 mL	ICP-07W-5		ICP-07W-10X-5
Cadmium (Cd) Cd		2-5% Nitric acid	50 mL	-----	--	ICP-08N-10X-0.5
			100 mL	ICP-08N-1		ICP-08N-10X-1
			500 mL	ICP-08N-5		ICP-08N-10X-5
Calcium (Ca) CaCO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-09N-10X-0.5
			100 mL	ICP-09N-1		ICP-09N-10X-1
			500 mL	ICP-09N-5		ICP-09N-10X-5
Cerium (Ce) Ce(NO ₃) ₃		2-5% Nitric acid	50 mL	-----	--	ICP-11N-10X-0.5
			100 mL	ICP-11N-1		ICP-11N-10X-1
			500 mL	ICP-11N-5		ICP-11N-10X-5
Cesium (Cs) CsNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-12N-10X-0.5
			100 mL	ICP-12N-1		ICP-12N-10X-1
			500 mL	ICP-12N-5		ICP-12N-10X-5
Chromium reduced to (+3) state (NH ₄) ₂ Cr ₂ O ₇		2-5% Nitric acid	50 mL	-----	--	ICP-13N-10X-0.5
			100 mL	ICP-13N-1		ICP-13N-10X-1
			500 mL	ICP-13N-5		ICP-13N-10X-5
Cobalt (Co) Co		2-5% Nitric acid	50 mL	-----	--	ICP-14N-10X-0.5
			100 mL	ICP-14N-1		ICP-14N-10X-1
			500 mL	ICP-14N-5		ICP-14N-10X-5
Copper (Cu) Cu		2-5% Nitric acid	50 mL	-----	--	ICP-15N-10X-0.5
			100 mL	ICP-15N-1		ICP-15N-10X-1
			500 mL	ICP-15N-5		ICP-15N-10X-5
Dysprosium (Dy) Dy ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-16N-10X-0.5
			100 mL	ICP-16N-1		ICP-16N-10X-1
			500 mL	ICP-16N-5		ICP-16N-10X-5
Erbium (Er) Er ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-17N-10X-0.5
			100 mL	ICP-17N-1		ICP-17N-10X-1
			500 mL	ICP-17N-5		ICP-17N-10X-5
Europium (Eu) Eu ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-18N-10X-0.5
			100 mL	ICP-18N-1		ICP-18N-10X-1
			500 mL	ICP-18N-5		ICP-18N-10X-5
Gadolinium (Gd) Gd ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-19N-10X-0.5
			100 mL	ICP-19N-1		ICP-19N-10X-1
			500 mL	ICP-19N-5		ICP-19N-10X-5
Gallium (Ga) Ga		2-5% Nitric acid	50 mL	-----	--	ICP-20N-10X-0.5
			100 mL	ICP-20N-1		ICP-20N-10X-1
			500 mL	ICP-20N-5		ICP-20N-10X-5

Single Element ICP continued on next page

ICP

Single Element

		Single Element ICP				
Element	Starting Material	Matrix	Unit	Concentration		
				1000 µg/mL	10,000 µg/mL	
			Cat. No.	Cat. No.		
Germanium (Ge) (NH ₄) ₂ GeF ₆	Water tr. HF		50 mL	-----	--	ICP-21W-10X-0.5
			100 mL	ICP-21W-1		ICP-21W-10X-1
			500 mL	ICP-21W-5		ICP-21W-10X-5
Gold (Au) Au	10% HCl		50 mL	-----	--	ICP-22H-10X-0.5
			100 mL	ICP-22H-1		ICP-22H-10X-1
			500 mL	ICP-22H-5		-----
Hafnium (Hf) HfO ₂	2-5% Nitric acid tr. HF		50 mL	-----	--	ICP-23N-10X-0.5
			100 mL	ICP-23N-1		ICP-23N-10X-1
			500 mL	ICP-23N-5		ICP-23N-10X-5
Holmium (Ho) Ho ₂ O ₃	2-5% Nitric acid		50 mL	-----	--	ICP-24N-10X-0.5
			100 mL	ICP-24N-1		ICP-24N-10X-1
			500 mL	ICP-24N-5		ICP-24N-10X-5
Indium (In) In	2-5% Nitric acid		50 mL	-----	--	ICP-25N-10X-0.5
			100 mL	ICP-25N-1		ICP-25N-10X-1
			500 mL	ICP-25N-5		ICP-25N-10X-5
Iridium (Ir) IrCl ₃ • 3H ₂ O	10% HCl		50 mL	-----	--	ICP-26H-10X-0.5
			100 mL	ICP-26H-1		ICP-26H-10X-1
			500 mL	ICP-26H-5		-----
Iron (Fe) Fe	2-5% Nitric acid		50 mL	-----	--	ICP-27N-10X-0.5
			100 mL	ICP-27N-1		ICP-27N-10X-1
			500 mL	ICP-27N-5		ICP-27N-10X-5
Lanthanum (La) La ₂ O ₃	2-5% Nitric acid		50 mL	-----	--	ICP-28N-10X-0.5
			100 mL	ICP-28N-1		ICP-28N-10X-1
			500 mL	ICP-28N-5		ICP-28N-10X-5
Lead (Pb) Pb(NO ₃) ₂	2-5% Nitric acid		50 mL	-----	--	ICP-29N-10X-0.5
			100 mL	ICP-29N-1		ICP-29N-10X-1
			500 mL	ICP-29N-5		ICP-29N-10X-5
Lithium (Li) Li ₂ CO ₃	2-5% Nitric acid		50 mL	-----	--	ICP-30N-10X-0.5
			100 mL	ICP-30N-1		ICP-30N-10X-1
			500 mL	ICP-30N-5		ICP-30N-10X-5
Lutetium (Lu) Lu ₂ O ₃	2-5% Nitric acid		50 mL	-----	--	ICP-31N-10X-0.5
			100 mL	ICP-31N-1		ICP-31N-10X-1
			500 mL	ICP-31N-5		-----
Magnesium (Mg) Mg(NO ₃) ₂ •6H ₂ O	2-5% Nitric acid		50 mL	-----	--	ICP-32N-10X-0.5
			100 mL	ICP-32N-1		ICP-32N-10X-1
			500 mL	ICP-32N-5		ICP-32N-10X-5
Manganese (Mn) Mn(C ₂ H ₃ O ₂) ₂	2-5% Nitric acid		50 mL	-----	--	ICP-33N-10X-0.5
			100 mL	ICP-33N-1		ICP-33N-10X-1
			500 mL	ICP-33N-5		ICP-33N-10X-5
Mercury (Hg) Hg	10% Nitric acid		50 mL	-----	--	ICP-34N-10X-0.5
			100 mL	ICP-34N-1		ICP-34N-10X-1
			500 mL	ICP-34N-5		ICP-34N-10X-5
Molybdenum (Mo) (NH ₄) ₂ MoO ₄	Water tr. NH ₄ OH		50 mL	-----	--	ICP-35W-10X-0.5
			100 mL	ICP-35W-1		ICP-35W-10X-1
			500 mL	ICP-35W-5		ICP-35W-10X-5
Neodymium (Nd) Nd ₂ O ₃	2-5% Nitric acid		50 mL	-----	--	ICP-36N-10X-0.5
			100 mL	ICP-36N-1		ICP-36N-10X-1
			500 mL	ICP-36N-5		ICP-36N-10X-5
Nickel (Ni) Ni	2-5% Nitric acid		50 mL	-----	--	ICP-37N-10X-0.5
			100 mL	ICP-37N-1		ICP-37N-10X-1
			500 mL	ICP-37N-5		ICP-37N-10X-5
Niobium (Nb) Nb ₂ O ₅	Water tr. HF		50 mL	-----	--	ICP-38W-10X-0.5
			100 mL	ICP-38W-1		ICP-38W-10X-1
			500 mL	ICP-38W-5		ICP-38W-10X-5
Palladium (Pd) Pd	10% HCl		50 mL	-----	--	ICP-40H-10X-0.5
			100 mL	ICP-40H-1		ICP-40H-10X-1
			500 mL	ICP-40H-5		-----
Phosphorus (P) NH ₄ H ₂ PO ₄	Water		50 mL	-----	--	ICP-41W-10X-0.5
			100 mL	ICP-41W-1		ICP-41W-10X-1
			500 mL	ICP-41W-5		ICP-41W-10X-5
Platinum (Pt) Pt	10% HCl		50 mL	-----	--	ICP-42H-10X-0.5
			100 mL	ICP-42H-1		ICP-42H-10X-1
			500 mL	ICP-42H-5		-----

ICP

Single Element

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

**3 Year Minimum Shelf Life on
Single Element ICP Standards**

Single Element ICP							
Element	Starting Material	Matrix	Unit	1000 µg/mL		10,000 µg/mL	
				Cat. No.		Cat. No.	
Potassium (K) KNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-43N-10X-0.5	
			100 mL	ICP-43N-1		ICP-43N-10X-1	
			500 mL	ICP-43N-5		ICP-43N-10X-5	
Praseodymium (Pr) Pr ₆ O ₁₁		2-5% Nitric acid	50 mL	-----	--	ICP-44N-10X-0.5	
			100 mL	ICP-44N-1		ICP-44N-10X-1	
			500 mL	ICP-44N-5		ICP-44N-10X-5	
Rhenium (Re) Re		Water tr. Nitric acid	50 mL	-----	--	ICP-45W-10X-0.5	
			100 mL	ICP-45W-1		ICP-45W-10X-1	
			500 mL	ICP-45W-5		ICP-45W-10X-5	
Rhodium (Rh) RhCl ₃ • 3H ₂ O		10% HCl	50 mL	-----	--	ICP-46H-10X-0.5	
			100 mL	ICP-46H-1		ICP-46H-10X-1	
			500 mL	ICP-46H-5		-----	--
Rubidium (Rb) RbNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-47N-10X-0.5	
			100 mL	ICP-47N-1		ICP-47N-10X-1	
			500 mL	ICP-47N-5		ICP-47N-10X-5	
Ruthenium (Ru) RuCl ₃ • 3H ₂ O		10% HCl	50 mL	-----	--	ICP-48H-10X-0.5	
			100 mL	ICP-48H-1		ICP-48H-10X-1	
			500 mL	ICP-48H-5		-----	--
Samarium (Sm) Sm ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-49N-10X-0.5	
			100 mL	ICP-49N-1		ICP-49N-10X-1	
			500 mL	ICP-49N-5		ICP-49N-10X-5	
Scandium (Sc) Sc ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-50N-10X-0.5	
			100 mL	ICP-50N-1		ICP-50N-10X-1	
			500 mL	ICP-50N-5		ICP-50N-10X-5	
Selenium (Se) Se		2-5% Nitric acid	50 mL	-----	--	ICP-51N-10X-0.5	
			100 mL	ICP-51N-1		ICP-51N-10X-1	
			500 mL	ICP-51N-5		ICP-51N-10X-5	
Silicon (Si) (NH ₄) ₂ SiF ₆		Water tr. HF	50 mL	-----	--	ICP-52W-10X-0.5	
			100 mL	ICP-52W-1		ICP-52W-10X-1	
			500 mL	ICP-52W-5		ICP-52W-10X-5	
Silver (Ag) AgNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-53N-10X-0.5	
			100 mL	ICP-53N-1		ICP-53N-10X-1	
			500 mL	ICP-53N-5		ICP-53N-10X-5	
Sodium (Na) NaNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-54N-10X-0.5	
			100 mL	ICP-54N-1		ICP-54N-10X-1	
			500 mL	ICP-54N-5		ICP-54N-10X-5	
Strontium (Sr) Sr(NO ₃) ₂		2-5% Nitric acid	50 mL	-----	--	ICP-55N-10X-0.5	
			100 mL	ICP-55N-1		ICP-55N-10X-1	
			500 mL	ICP-55N-5		ICP-55N-10X-5	
Sulfur (S) (NH ₄) ₂ SO ₄		Water	50 mL	-----	--	ICP-56W-10X-0.5	
			100 mL	ICP-56W-1		ICP-56W-10X-1	
			500 mL	ICP-56W-5		ICP-56W-10X-5	
Tantalum (Ta) Ta		Water tr. HF	50 mL	-----	--	ICP-57W-10X-0.5	
			100 mL	ICP-57W-1		ICP-57W-10X-1	
			500 mL	ICP-57W-5		ICP-57W-10X-5	
Tellurium (Te) Te		20%-40% HCl	50 mL	-----	--	ICP-58H-10X-0.5	
			100 mL	ICP-58H-1		ICP-58H-10X-1	
			500 mL	ICP-58H-5		ICP-58H-10X-5	
Terbium (Tb) Tb ₄ O ₇		2-5% Nitric acid	50 mL	-----	--	ICP-59N-10X-0.5	
			100 mL	ICP-59N-1		ICP-59N-10X-1	
			500 mL	ICP-59N-5		ICP-59N-10X-5	
Thallium (Tl) Tl		2-5% Nitric acid	50 mL	-----	--	ICP-60N-10X-0.5	
			100 mL	ICP-60N-1		ICP-60N-10X-1	
			500 mL	ICP-60N-5		ICP-60N-10X-5	
Thorium (Th) Th(NO ₃) ₄ • 4H ₂ O		2-5% Nitric acid	-----	-----	--	-----	--
			100 mL	ICP-61N-1		-----	--
			500 mL	ICP-61N-5		-----	--

Single Element ICP
continued on next page

ICP

Single Element

Single Element ICP

Element	Starting Material	Matrix	Unit	1000 µg/mL		10,000 µg/mL	
				Cat. No.		Cat. No.	
Thulium (Tm) Tm ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-62N-10X-0.5	
			100 mL	ICP-62N-1		ICP-62N-10X-1	
			500 mL	ICP-62N-5		-----	--
Tin (Sn) Sn		2-5% Nitric acid tr. HF	50 mL	-----	--	ICP-63N-10X-0.5	
			100 mL	ICP-63N-1		ICP-63N-10X-1	
			500 mL	ICP-63N-5		ICP-63N-10X-5	
Titanium (Ti) (NH ₄) ₂ TiF ₆		Water tr. HF	50 mL	-----	--	ICP-64W-10X-0.5	
			100 mL	ICP-64W-1		ICP-64W-10X-1	
			500 mL	ICP-64W-5		ICP-64W-10X-5	
Tungsten (W) (NH ₄) ₂ WO ₄		Water tr. NH ₄ OH	50 mL	-----	--	ICP-65W-10X-0.5	
			100 mL	ICP-65W-1		ICP-65W-10X-1	
			500 mL	ICP-65W-5		ICP-65W-10X-5	
Uranium (U) U ₃ O ₈		2-5% Nitric acid	-----	-----	--	-----	--
			100 mL	ICP-66N-1		-----	--
			500 mL	ICP-66N-5		-----	--
Vanadium (V) NH ₄ VO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-67N-10X-0.5	
			100 mL	ICP-67N-1		ICP-67N-10X-1	
			500 mL	ICP-67N-5		ICP-67N-10X-5	
Ytterbium (Yb) Yb ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-68N-10X-0.5	
			100 mL	ICP-68N-1		ICP-68N-10X-1	
			500 mL	ICP-68N-5		ICP-68N-10X-5	
Yttrium (Y) Y ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-69N-10X-0.5	
			100 mL	ICP-69N-1		ICP-69N-10X-1	
			500 mL	ICP-69N-5		ICP-69N-10X-5	
Zinc (Zn) Zn		2-5% Nitric acid	50 mL	-----	--	ICP-70N-10X-0.5	
			100 mL	ICP-70N-1		ICP-70N-10X-1	
			500 mL	ICP-70N-5		ICP-70N-10X-5	
Zirconium (Zr) ZrO(NO ₃) ₂		2-5% Nitric acid	50 mL	-----	--	ICP-71N-10X-0.5	
			100 mL	ICP-71N-1		ICP-71N-10X-1	
			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% HNO₃ in 18 Megohm ASTM
Type I deionized Water

Hydrochloric Acid Blank

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

5% HCl in 18 Megohm ASTM Type I
deionized Water

Mixed Acid Blank

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

5% HCl + 1% HNO₃ in 18 Megohm
ASTM Type I deionized Water

Water Blank

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

18 Megohm ASTM Type I deionized
Water

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

ICP/MS

Single Element

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

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

**3 Year Minimum Shelf Life on
Single Element ICP Standards**

Single Element ICP/MS

Element	Matrix	Unit	Single Element ICP/MS		
			100 µg/mL	1,000 µg/mL	10,000 µg/mL
			Cat. No.	Cat. No.	Cat. No.
Aluminum (Al)	2-5% HNO ₃	100 mL	ICP-MS-01N-0.01X-1	ICP-MS-01N-0.1X-1	ICP-MS-01N-1
Antimony (Sb)	2-5% HNO ₃ tr. Tartaric acid	100 mL	ICP-MS-02N-0.01X-1	ICP-MS-02N-0.1X-1	ICP-MS-02N-1
Arsenic (As)	2-5% HNO ₃	100 mL	ICP-MS-03N-0.01X-1	ICP-MS-03N-0.1X-1	ICP-MS-03N-1
Barium (Ba)	2-5% HNO ₃	100 mL	ICP-MS-04N-0.01X-1	ICP-MS-04N-0.1X-1	ICP-MS-04N-1
Beryllium (Be)	2-5% HNO ₃	100 mL	ICP-MS-05N-0.01X-1	ICP-MS-05N-0.1X-1	ICP-MS-05N-1
Bismuth (Bi)	2-10% HNO ₃	100 mL	ICP-MS-06N-0.01X-1	ICP-MS-06N-0.1X-1	ICP-MS-06N-1
Boron (B)	Water tr. NH ₄ OH	100 mL	ICP-MS-07W-0.01X-1	ICP-MS-07W-0.1X-1	ICP-MS-07W-1
Cadmium (Cd)	2-5% HNO ₃	100 mL	ICP-MS-08N-0.01X-1	ICP-MS-08N-0.1X-1	ICP-MS-08N-1
Calcium (Ca)	2-5% HNO ₃	100 mL	ICP-MS-09N-0.01X-1	ICP-MS-09N-0.1X-1	ICP-MS-09N-1
Cerium (Ce)	2-5% HNO ₃	100 mL	ICP-MS-11N-0.01X-1	ICP-MS-11N-0.1X-1	ICP-MS-11N-1
Cesium (Cs)	2-5% HNO ₃	100 mL	ICP-MS-12N-0.01X-1	ICP-MS-12N-0.1X-1	ICP-MS-12N-1
Chromium (Cr)	2-5% HNO ₃	100 mL	ICP-MS-13N-0.01X-1	ICP-MS-13N-0.1X-1	ICP-MS-13N-1
Cobalt (Co)	2-5% HNO ₃	100 mL	ICP-MS-14N-0.01X-1	ICP-MS-14N-0.1X-1	ICP-MS-14N-1
Copper (Cu)	2-5% HNO ₃	100 mL	ICP-MS-15N-0.01X-1	ICP-MS-15N-0.1X-1	ICP-MS-15N-1
Dysprosium (Dy)	2-5% HNO ₃	100 mL	ICP-MS-16N-0.01X-1	ICP-MS-16N-0.1X-1	ICP-MS-16N-1
Erbium (Er)	2-5% HNO ₃	100 mL	ICP-MS-17N-0.01X-1	ICP-MS-17N-0.1X-1	ICP-MS-17N-1
Europium (Eu)	2-5% HNO ₃	100 mL	ICP-MS-18N-0.01X-1	ICP-MS-18N-0.1X-1	ICP-MS-18N-1
Gadolinium (Gd)	2-5% HNO ₃	100 mL	ICP-MS-19N-0.01X-1	ICP-MS-19N-0.1X-1	ICP-MS-19N-1
Gallium (Ga)	2-5% HNO ₃	100 mL	ICP-MS-20N-0.01X-1	ICP-MS-20N-0.1X-1	ICP-MS-20N-1
Germanium (Ge)	Water tr. HF	100 mL	ICP-MS-21W-0.01X-1	ICP-MS-21W-0.1X-1	ICP-MS-21W-1
Gold (Au)	10% HCl	100 mL	ICP-MS-22H-0.01X-1	ICP-MS-22H-0.1X-1	ICP-MS-22H-1
Hafnium (Hf)	2-5% HNO ₃ tr. HF	100 mL	ICP-MS-23N-0.01X-1	ICP-MS-23N-0.1X-1	ICP-MS-23N-1
Holmium (Ho)	2-5% HNO ₃	100 mL	ICP-MS-24N-0.01X-1	ICP-MS-24N-0.1X-1	ICP-MS-24N-1
Indium (In)	2-5% HNO ₃	100 mL	ICP-MS-25N-0.01X-1	ICP-MS-25N-0.1X-1	ICP-MS-25N-1
Iridium (Ir)	10% HCl	100 mL	ICP-MS-26H-0.01X-1	ICP-MS-26H-0.1X-1	ICP-MS-26H-1
Iron (Fe)	2-5% HNO ₃	100 mL	ICP-MS-27N-0.01X-1	ICP-MS-27N-0.1X-1	ICP-MS-27N-1
Lanthanum (La)	2-5% HNO ₃	100 mL	ICP-MS-28N-0.01X-1	ICP-MS-28N-0.1X-1	ICP-MS-28N-1
Lead (Pb)	2-5% HNO ₃	100 mL	ICP-MS-29N-0.01X-1	ICP-MS-29N-0.1X-1	ICP-MS-29N-1
Lithium (Li)	2-5% HNO ₃	100 mL	ICP-MS-30N-0.01X-1	ICP-MS-30N-0.1X-1	ICP-MS-30N-1
Lutetium (Lu)	2-5% HNO ₃	100 mL	ICP-MS-31N-0.01X-1	ICP-MS-31N-0.1X-1	ICP-MS-31N-1
Magnesium (Mg)	2-5% HNO ₃	100 mL	ICP-MS-32N-0.01X-1	ICP-MS-32N-0.1X-1	ICP-MS-32N-1
Manganese (Mn)	2-5% HNO ₃	100 mL	ICP-MS-33N-0.01X-1	ICP-MS-33N-0.1X-1	ICP-MS-33N-1
Mercury (Hg) ●	5-10% HNO ₃	100 mL	ICP-MS-34N-0.01X-1	ICP-MS-34N-0.1X-1	ICP-MS-34N-1
Molybdenum (Mo)	Water tr. NH ₄ OH	100 mL	ICP-MS-35W-0.01X-1	ICP-MS-35W-0.1X-1	ICP-MS-35W-1
Neodymium (Nd)	2-5% HNO ₃	100 mL	ICP-MS-36N-0.01X-1	ICP-MS-36N-0.1X-1	ICP-MS-36N-1
Nickel (Ni)	2-5% HNO ₃	100 mL	ICP-MS-37N-0.01X-1	ICP-MS-37N-0.1X-1	ICP-MS-37N-1
Niobium (Nb)	Water tr. HF	100 mL	ICP-MS-38W-0.01X-1	ICP-MS-38W-0.1X-1	ICP-MS-38W-1
Palladium (Pd)	10% HCl	100 mL	ICP-MS-40H-0.01X-1	ICP-MS-40H-0.1X-1	ICP-MS-40H-1
Phosphorus (P)	Water	100 mL	ICP-MS-41W-0.01X-1	ICP-MS-41W-0.1X-1	ICP-MS-41W-1
Platinum (Pt)	10% HCl	100 mL	ICP-MS-42H-0.01X-1	ICP-MS-42H-0.1X-1	ICP-MS-42H-1
Potassium (K)	2-5% HNO ₃	100 mL	ICP-MS-43N-0.01X-1	ICP-MS-43N-0.1X-1	ICP-MS-43N-1
Praseodymium (Pr)	2-5% HNO ₃	100 mL	ICP-MS-44N-0.01X-1	ICP-MS-44N-0.1X-1	ICP-MS-44N-1
Rhenium (Re)	Water tr. HNO ₃	100 mL	ICP-MS-45W-0.01X-1	ICP-MS-45W-0.1X-1	ICP-MS-45W-1
Rhodium (Rh)	10% HCl	100 mL	ICP-MS-46H-0.01X-1	ICP-MS-46H-0.1X-1	ICP-MS-46H-1

● Product contains Mercury. Dispose according to Federal, State or local laws.

**Single Element ICP/MS
continued on next page**

ICP/MS

Single Element

Single Element ICP/MS

Element	Matrix	Unit	100 µg/mL	1,000 µg/mL	10,000 µg/mL
			Cat. No.	Cat. No.	Cat. No.
Rubidium (Rb)	2-5% HNO ₃	100 mL	ICP-MS-47N-0.01X-1	ICP-MS-47N-0.1X-1	ICP-MS-47N-1
Ruthenium (Ru)	10% HCl	100 mL	ICP-MS-48H-0.01X-1	ICP-MS-48H-0.1X-1	ICP-MS-48H-1
Samarium (Sm)	2-5% HNO ₃	100 mL	ICP-MS-49N-0.01X-1	ICP-MS-49N-0.1X-1	ICP-MS-49N-1
Scandium (Sc)	2-5% HNO ₃	100 mL	ICP-MS-50N-0.01X-1	ICP-MS-50N-0.1X-1	ICP-MS-50N-1
Selenium (Se)	2-5% HNO ₃	100 mL	ICP-MS-51N-0.01X-1	ICP-MS-51N-0.1X-1	ICP-MS-51N-1
Silicon (Si)	H ₂ O tr. HF	100 mL	ICP-MS-52W-0.01X-1	ICP-MS-52W-0.1X-1	ICP-MS-52W-1
Silver (Ag)	2-5% HNO ₃	100 mL	ICP-MS-53N-0.01X-1	ICP-MS-53N-0.1X-1	ICP-MS-53N-1
Sodium (Na)	2-5% HNO ₃	100 mL	ICP-MS-54N-0.01X-1	ICP-MS-54N-0.1X-1	ICP-MS-54N-1
Strontium (Sr)	2-5% HNO ₃	100 mL	ICP-MS-55N-0.01X-1	ICP-MS-55N-0.1X-1	ICP-MS-55N-1
Sulfur (S)	Water	100 mL	ICP-MS-56W-0.01X-1	ICP-MS-56W-0.1X-1	ICP-MS-56W-1
Tantalum (Ta)	Water tr. HF	100 mL	ICP-MS-57W-0.01X-1	ICP-MS-57W-0.1X-1	ICP-MS-57W-1
Tellurium (Te)	10% HCl (min.)	100 mL	ICP-MS-58H-0.01X-1	ICP-MS-58H-0.1X-1	ICP-MS-58H-1
Terbium (Tb)	2-5% HNO ₃	100 mL	ICP-MS-59N-0.01X-1	ICP-MS-59N-0.1X-1	ICP-MS-59N-1
Thallium (Tl)	2-5% HNO ₃	100 mL	ICP-MS-60N-0.01X-1	ICP-MS-60N-0.1X-1	ICP-MS-60N-1
Thorium (Th)	2-5% HNO ₃	100 mL	ICP-MS-61N-0.01X-1	ICP-MS-61N-0.1X-1	----- --
Thulium (Tm)	2-5% HNO ₃	100 mL	ICP-MS-62N-0.01X-1	ICP-MS-62N-0.1X-1	ICP-MS-62N-1
Tin (Sn)	2-5% HNO ₃ tr. HF	100 mL	ICP-MS-63N-0.01X-1	ICP-MS-63N-0.1X-1	ICP-MS-63N-1
Titanium (Ti)	Water tr. HF	100 mL	ICP-MS-64W-0.01X-1	ICP-MS-64W-0.1X-1	ICP-MS-64W-1
Tungsten (W)	Water tr. NH ₄ OH	100 mL	ICP-MS-65W-0.01X-1	ICP-MS-65W-0.1X-1	ICP-MS-65W-1
Uranium (U)	2-5% HNO ₃	100 mL	ICP-MS-66N-0.01X-1	ICP-MS-66N-0.1X-1	----- --
Vanadium (V)	2-5% HNO ₃	100 mL	ICP-MS-67N-0.01X-1	ICP-MS-67N-0.1X-1	ICP-MS-67N-1
Ytterbium (Yb)	2-5% HNO ₃	100 mL	ICP-MS-68N-0.01X-1	ICP-MS-68N-0.1X-1	ICP-MS-68N-1
Yttrium (Y)	2-5% HNO ₃	100 mL	ICP-MS-69N-0.01X-1	ICP-MS-69N-0.1X-1	ICP-MS-69N-1
Zinc (Zn)	2-5% HNO ₃	100 mL	ICP-MS-70N-0.01X-1	ICP-MS-70N-0.1X-1	ICP-MS-70N-1
Zirconium (Zr)	2-5% HNO ₃	100 mL	ICP-MS-71N-0.01X-1	ICP-MS-71N-0.1X-1	ICP-MS-71N-1

Matrix Blanks

Nitric Acid Blank

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

5% HNO₃ in 18 Megohm ASTM Type I deionized Water

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

Hydrochloric Acid Blank

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

5% HCl in 18 Megohm ASTM Type I deionized Water

Water Blank

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

18 Megohm ASTM Type I deionized Water

Single Element and Matrix Modifier & Calibration

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
- 18 megohm de-ionized Water
- 36 Month Shelf Life

**3 Year Minimum Shelf Life on
Single Element ICP/MS Standards**

Single Element AA

1000 µg/mL			1000 µg/mL		
Element	Unit	Cat. No.	Element	Unit	Cat. No.
Matrix			Matrix		
Aluminum (Al)	100 mL	AA01N-1	Molybdenum (Mo)	100 mL	AA35W-1
2-5% Nitric acid	500 mL	AA01N-5	Water tr. NH ₄ OH	500 mL	AA35W-5
Antimony (Sb)	100 mL	AA02N-1	Nickel (Ni)	100 mL	AA37N-1
2-5% HNO ₃ tr. Tartaric acid	500 mL	AA02N-5	2-5% Nitric acid	500 mL	AA37N-5
Arsenic (As)	100 mL	AA03N-1	Phosphorus (P)	100 mL	AA41W-1
2-5% Nitric acid	500 mL	AA03N-5	Water	500 mL	AA41W-5
Barium (Ba)	100 mL	AA04N-1	Potassium (K)	100 mL	AA43N-1
2-5% Nitric acid	500 mL	AA04N-5	2-5% Nitric acid	500 mL	AA43N-5
Boron (B)	100 mL	AA07W-1	Selenium (Se)	100 mL	AA51N-1
Water tr. NH ₄ OH	500 mL	AA07W-5	2-5% Nitric acid	500 mL	AA51N-5
Cadmium (Cd)	100 mL	AA08N-1	Silicon (Si)	100 mL	AA52W-1
2-5% Nitric acid	500 mL	AA08N-5	Water tr. HF	500 mL	AA52W-5
Calcium (Ca)	100 mL	AA09N-1	Silver (Ag)	100 mL	AA53N-1
2-5% Nitric acid	500 mL	AA09N-5	2-5% Nitric acid	500 mL	AA53N-5
Chromium (Cr)	100 mL	AA13N-1	Sodium (Na)	100 mL	AA54N-1
2-5% Nitric acid	500 mL	AA13N-5	2-5% Nitric acid	500 mL	AA54N-5
Cobalt (Co)	100 mL	AA14N-1	Strontium (Sr)	100 mL	AA55N-1
2-5% Nitric acid	500 mL	AA14N-5	2-5% Nitric acid	500 mL	AA55N-5
Copper (Cu)	100 mL	AA15N-1	Sulfur (S)	100 mL	AA56W-1
2-5% Nitric acid	500 mL	AA15N-5	Water	500 mL	AA56W-5
Gold (Au)	100 mL	AA22H-1	Thallium (Tl)	100 mL	AA60N-1
5% HCl (min.)	500 mL	AA22H-5	2-5% Nitric acid	500 mL	AA60N-5
Iron (Fe)	100 mL	AA27N-1	Tin (Sn)	100 mL	AA63N-1
2-5% Nitric acid	500 mL	AA27N-5	2-5% Nitric acid tr. HF	500 mL	AA63N-5
Lead (Pb)	100 mL	AA29N-1	Titanium (Ti)	100 mL	AA64W-1
2-5% Nitric acid	500 mL	AA29N-5	Water tr. HF	500 mL	AA64W-5
Lithium (Li)	100 mL	AA30N-1	Vanadium (V)	100 mL	AA67N-1
2-5% Nitric acid	500 mL	AA30N-5	5-10% Nitric acid	500 mL	AA67N-5
Magnesium (Mg)	100 mL	AA32N-1	Yttrium (Y)	100 mL	AA69N-1
2-5% Nitric acid	500 mL	AA32N-5	2-5% Nitric acid	500 mL	AA69N-5
Manganese (Mn)	100 mL	AA33N-1	Zinc (Zn)	100 mL	AA70N-1
2-5% Nitric acid	500 mL	AA33N-5	2-5% Nitric acid	500 mL	AA70N-5
Mercury (Hg) ●	100 mL	AA34N-1			
2-5% Nitric acid	500 mL	AA34N-5			

● Product contains Mercury, dispose according to Federal, State or local laws.

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 Water	NH ₄ H ₂ PO ₄	50 mL	MOD-02-0.5
		100 mL	MOD-02-1
Ammonium nitrate 5% in Water	NH ₄ NO ₃	50 mL	MOD-03-0.5
		100 mL	MOD-03-1
Magnesium nitrate 2% Magnesium in 5% HNO ₃	Mg(NO ₃) ₂	50 mL	MOD-07-0.5
		100 mL	MOD-07-1
Nickel nitrate 5% Nickel in 5% HNO ₃	Ni(NO ₃) ₂	50 mL	MOD-08-0.5
		100 mL	MOD-08-1
Palladium nitrate 0.2% Palladium in 5% HNO ₃	Pd(NO ₃) ₂	50 mL	MOD-09A-0.5
		100 mL	MOD-09A-1
Palladium nitrate 1.0% Palladium in 10% HNO ₃	Pd(NO ₃) ₂	50 mL	MOD-09C-0.5
		100 mL	MOD-09C-1

Calibration and Matrix Blanks

Nitric Acid Blank

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

5% HNO₃ in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

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

5% HCl in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

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

5% HCl + 1% HNO₃ in 18 Megohm ASTM Type I deionized Water

Water Blank

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

18 Megohm ASTM Type I deionized Water

Ion Chromatography

- 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 COA, 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			200 µg/mL			1000 µg/mL		
		Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	
Acetate	100 mL	IC-ACET-1X-1	-----	-----	-----	-----	IC-ACET-10X-1	-----	-----	
	500 mL	IC-ACET-1X-5	-----	-----	-----	-----	IC-ACET-10X-5	-----	-----	
Bromate	100 mL	-----	-----	-----	-----	-----	IC-BROM-10X-1	-----	-----	
	500 mL	-----	-----	-----	-----	-----	IC-BROM-10X-5	-----	-----	
Bromide (Br)	100 mL	IC-BR-1X-1	IC-BR-1X-1	IC-BR-2X-1	IC-BR-2X-1	IC-BR-2X-1	IC-BR-10X-1	IC-BR-10X-1	IC-BR-10X-1	
	500 mL	IC-BR-1X-5	IC-BR-1X-5	IC-BR-2X-5	IC-BR-2X-5	IC-BR-2X-5	IC-BR-10X-5	IC-BR-10X-5	IC-BR-10X-5	
Citrate	100 mL	-----	-----	-----	-----	-----	IC-CITR-10X-1	-----	-----	
Chlorate	100 mL	IC-CHLR-1X-1	-----	-----	-----	-----	IC-CHLR-10X-1	-----	-----	
	500 mL	IC-CHLR-1X-5	-----	-----	-----	-----	IC-CHLR-10X-5	-----	-----	
Chloride (Cl)	100 mL	IC-CL-1X-1	IC-CL-1X-1	IC-CL-2X-1	IC-CL-2X-1	IC-CL-2X-1	IC-CL-10X-1	IC-CL-10X-1	IC-CL-10X-1	
	500 mL	IC-CL-1X-5	IC-CL-1X-5	IC-CL-2X-5	IC-CL-2X-5	IC-CL-2X-5	IC-CL-10X-5	IC-CL-10X-5	IC-CL-10X-5	
Chlorite	100 mL	-----	-----	-----	-----	-----	IC-CHLT-10X-1	-----	-----	
Chromate	100 mL	IC-CHRM-1X-1	-----	-----	-----	-----	IC-CHRM-10X-1	-----	-----	
	500 mL	IC-CHRM-1X-5	-----	-----	-----	-----	IC-CHRM-10X-5	-----	-----	
Fluoride (F)	100 mL	IC-F-1X-1	IC-F-1X-1	IC-F-2X-1	IC-F-2X-1	IC-F-2X-1	IC-F-10X-1	IC-F-10X-1	IC-F-10X-1	
	500 mL	IC-F-1X-5	IC-F-1X-5	IC-F-2X-5	IC-F-2X-5	IC-F-2X-5	IC-F-10X-5	IC-F-10X-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	100 mL	-----	-----	-----	-----	-----	IC-GLYC-10X-1	-----	-----	
Iodide	100 mL	-----	-----	-----	-----	-----	IC-I-10X-1	-----	-----	
Lactate	100 mL	-----	-----	-----	-----	-----	IC-LACT-10X-1	-----	-----	
Malate	100 mL	-----	-----	-----	-----	-----	IC-MALA-10X-1	-----	-----	
Maleate	100 mL	-----	-----	-----	-----	-----	IC-MALE-10X-1	-----	-----	
Nitrite (NO ₂)	100 mL	IC-NO2-1X-1	IC-NO2-1X-1	IC-NO2-2X-1	IC-NO2-2X-1	IC-NO2-2X-1	IC-NO2-10X-1	IC-NO2-10X-1	IC-NO2-10X-1	
	500 mL	IC-NO2-1X-5	IC-NO2-1X-5	IC-NO2-2X-5	IC-NO2-2X-5	IC-NO2-2X-5	IC-NO2-10X-5	IC-NO2-10X-5	IC-NO2-10X-5	
Nitrate (NO ₃)	100 mL	IC-NO3-1X-1	IC-NO3-1X-1	IC-NO3-2X-1	IC-NO3-2X-1	IC-NO3-2X-1	IC-NO3-10X-1	IC-NO3-10X-1	IC-NO3-10X-1	
	500 mL	IC-NO3-1X-5	IC-NO3-1X-5	IC-NO3-2X-5	IC-NO3-2X-5	IC-NO3-2X-5	IC-NO3-10X-5	IC-NO3-10X-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	100 mL	-----	-----	-----	-----	-----	IC-PER-10X-1	-----	-----	
Phthalate	100 mL	-----	-----	-----	-----	-----	IC-PHTH-10X-1	-----	-----	
Phosphate (PO ₄)	100 mL	IC-PO4-1X-1	IC-PO4-1X-1	IC-PO4-2X-1	IC-PO4-2X-1	IC-PO4-2X-1	IC-PO4-10X-1	IC-PO4-10X-1	IC-PO4-10X-1	
	500 mL	IC-PO4-1X-5	IC-PO4-1X-5	IC-PO4-2X-5	IC-PO4-2X-5	IC-PO4-2X-5	IC-PO4-10X-5	IC-PO4-10X-5	IC-PO4-10X-5	
Propionate	100 mL	-----	-----	-----	-----	-----	IC-PROP-10X-1	-----	-----	
Succinate	100 mL	-----	-----	-----	-----	-----	IC-SUCC-10X-1	-----	-----	
Sulfate (SO ₄)	100 mL	IC-SO4-1X-1	IC-SO4-1X-1	IC-SO4-2X-1	IC-SO4-2X-1	IC-SO4-2X-1	IC-SO4-10X-1	IC-SO4-10X-1	IC-SO4-10X-1	
	500 mL	IC-SO4-1X-5	IC-SO4-1X-5	IC-SO4-2X-5	IC-SO4-2X-5	IC-SO4-2X-5	IC-SO4-10X-5	IC-SO4-10X-5	IC-SO4-10X-5	
Sulfide	20 mL	-----	-----	-----	-----	-----	IC-SULF-10X-20ML	-----	-----	
Dilute NaOH, stabilizer	5 x 20 mL	-----	-----	-----	-----	-----	IC-SULF-10X-20ML-VAP	-----	-----	
Tartrate	100 mL	-----	-----	-----	-----	-----	IC-TART-10X-1	-----	-----	

Anion Kits

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

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

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

Fluoride (F)	Bromide (Br)
Chloride (Cl)	Phosphate (PO ₄)
Nitrite (NO ₂)	Sulfate (SO ₄)
Nitrate (NO ₃)	

Ion Chromatography

Ion Chrom - Ion Singles as the Element

	Unit	100 µg/mL	1000 µg/mL
Nitrite-Nitrogen (NO₂-N)	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
Nitrate-Nitrogen (NO₃-N)	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
Phosphate-Phosphorus (PO₄-P)	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
Sulfate-Sulfur (SO₄-S)	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
Ammonium-Nitrogen (NH₄-N)	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-R-10X-1-SET 7 x 100 mL
IC-AN-R-10X-5-SET 7 x 500 mL
Each at 1000 µg/mL

Fluoride (F)
 Chloride (Cl)
 Nitrite-Nitrogen (NO₂-N)
 Nitrate-Nitrogen (NO₃-N)
 Bromide (Br)
 Phosphate-Phosphorus (PO₄-P)
 Sulfate-Sulfur (SO₄-S)

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
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

Conductivity Meter Calibration Std.

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

Mixed Common Anion Stock

M-314.0-MCA-250X-1 100 mL
 25 mg/mL in Water 3 comps.

Chloride Carbonate
 Sulfate

Method 314.0

Perchlorate Calibration Set

M-314.0-SET 100 mL
 IC-PER-10X-1 M-314.0-CMCS-1
 M-314.0-MCA-250X-1

Ion Chrom Eluents

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

Technical Note

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

Ion Chromatography

Anion Mixes

Anion Mix #1

IC-MAN-01-1 100 mL
At stated conc. (µg/mL) in Water
5 comps.

Fluoride (F)	20
Chloride (Cl)	30
Nitrate (NO ₃)	100
Phosphate (O ₄)	150
Sulfate (SO ₄)	150

Anion Mix #2

IC-MAN-02-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	100
Chloride (Cl)	200
Bromide (Br)	400
Nitrate (NO ₃)	400
Phosphate (PO ₄)	600
Sulfate (SO ₄)	400

Anion Mix #3

IC-MAN-03-1 100 mL
At stated conc. (µg/mL) in Water
3 comps.

Fluoride (F)	100
Chloride (Cl)	100
Sulfate (SO ₄)	100

Anion Mix #4

IC-MAN-04-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	100
Chloride (Cl)	100
Bromide (Br)	100
Nitrate (NO ₃)	100
Phosphate (PO ₄)	100
Sulfate (SO ₄)	100

Anion Mix #5

IC-MAN-05-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	10
Chloride (Cl)	20
Bromide (Br)	20
Nitrate (NO ₃)	20
Phosphate (PO ₄)	5
Sulfate (SO ₄)	30

Anion Mix #6

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

Fluoride (F)	1
Chloride (Cl)	5
Bromide (Br)	5
Nitrate (NO ₃)	5
Phosphate (PO ₄)	5
Sulfate (SO ₄)	10

Anion Mix #7

IC-MAN-07-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	1
Chloride (Cl)	10
Bromide (Br)	10
Nitrate (NO ₃)	10
Phosphate (PO ₄)	10
Sulfate (SO ₄)	10

Anion Mix #8

IC-MAN-08-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	10
Chloride (Cl)	20
Bromide (Br)	20
Nitrate (NO ₃)	20
Phosphate (PO ₄)	20
Sulfate (SO ₄)	20

Anion Mix #9

IC-MAN-09-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	20
Chloride (Cl)	40
Bromide (Br)	40
Nitrate (NO ₃)	40
Phosphate (PO ₄)	40
Sulfate (SO ₄)	40

Anion Mix #10

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

Fluoride (F)	25
Chloride (Cl)	50
Bromide (Br)	50
Nitrate (NO ₃)	50
Phosphate (PO ₄)	50
Sulfate (SO ₄)	50

Anion Mix #11

IC-MAN-11-1 100 mL
At stated conc. (µg/mL) in Water
5 comps.

Chloride (Cl)	1000
Bromide (Br)	1000
Nitrate (NO ₃)	1000
Phosphate (PO ₄)	1000
Sulfate (SO ₄)	1000

Anion Mix #12

IC-MAN-12-1 100 mL
At stated conc. (µg/mL) in Water
5 comps.

Chloride (Cl)	15
Bromide (Br)	15
Nitrate (NO ₃)	15
Phosphate (PO ₄)	15
Sulfate (SO ₄)	15

Anion Mix #13

IC-MAN-13-1 100 mL
At stated conc. (µg/mL) in Water
3 comps.

Fluoride (F)	25
Chloride (Cl)	50
Sulfate (SO ₄)	100

Anion Mix #14

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

Fluoride (F)	20
Chloride (Cl)	30
Bromide (Br)	100
Nitrate (NO ₃)	100
Phosphate (PO ₄)	150
Sulfate (SO ₄)	150

Anion Mix #14 Revised

IC-MAN-14-R2-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	20
Chloride (Cl)	30
Bromide (Br)	100
Nitrogen-Nitrate (N-NO ₃)	100
Phosphorus-Phosphate (P-PO ₄)	150
Sulfate (SO ₄)	150

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

Nitrite

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

Dichloroacetate Surrogate Standard

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

Nitrite

IC-NO2-10X-1	100 mL
Nitrite (NO ₂)	1000 µg/mL
IC-NO2-1X-1	100 mL
Nitrite (NO ₂)	100 µg/mL
IC-NO2-0.1X-1	100 mL
Nitrite (NO ₂)	10 µg/mL

Technical Note

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

Technical Note

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

Ion Chromatography

Ion Chrom - Cation Singles

Matrix	Unit	100 µg/mL	200 µg/mL	1000 µg/mL
		Cat. No.	Cat. No.	Cat. No.
Calcium (Ca)	100 mL	IC-CA-1X-1	IC-CA-2X-1	IC-CA-10X-1
Water, tr. HNO ₃	500 mL	IC-CA-1X-5	IC-CA-2X-5	IC-CA-10X-5
Ammonium (NH₄)	100 mL	IC-NH4-1X-1	IC-NH4-2X-1	IC-NH4-10X-1 †
Water	500 mL	IC-NH4-1X-5	IC-NH4-2X-5	IC-NH4-10X-5 †
Magnesium (Mg)	100 mL	IC-MG-1X-1	IC-MG-2X-1	IC-MG-10X-1
Water, tr. HNO ₃	500 mL	IC-MG-1X-5	IC-MG-2X-5	IC-MG-10X-5
Potassium (K)	100 mL	IC-K-1X-1	IC-K-2X-1	IC-K-10X-1
Water, tr. HNO ₃	500 mL	IC-K-1X-5	IC-K-2X-5	IC-K-10X-5
Sodium (Na)	100 mL	IC-NA-1X-1	IC-NA-2X-1	IC-NA-10X-1
Water, tr. HNO ₃	500 mL	IC-NA-1X-5	IC-NA-2X-5	IC-NA-10X-5
Lithium (Li)	100 mL	IC-LI-1X-1	IC-LI-2X-1	IC-LI-10X-1
Water, tr. HNO ₃	500 mL	IC-LI-1X-5	IC-LI-2X-5	IC-LI-10X-5
Barium (Ba)	100 mL	IC-BA-1X-1	IC-BA-2X-1	IC-BA-10X-1
Water, tr. HNO ₃	500 mL	IC-BA-1X-5	IC-BA-2X-5	IC-BA-10X-5
Strontium (Sr)	100 mL	IC-SR-1X-1	IC-SR-2X-1	IC-SR-10X-1
Water, tr. HNO ₃	500 mL	IC-SR-1X-5	IC-SR-2X-5	IC-SR-10X-5
Sets listed above	8 x 100 mL	IC-CAT-1X-1-SET	IC-CAT-2X-1-SET	IC-CAT-10X-1-SET
	8 x 500 mL	IC-CAT-1X-5-SET	IC-CAT-2X-5-SET	IC-CAT-10X-5-SET

Water tr. HNO₃ Matrix

† 1,000 µg/mL as Ammonium (NH₄) Other Nitrogen species equivalents are:

NH₃ (Ammonia) = 944 µg/mL

N (Nitrogen) = 776 µg/mL

Ion Chrom - Cation Mixes

Cation Mix #1

IC-MCA-01-1 100 mL
At stated conc. (µg/mL) in Dilute
HNO₃ 6 comps.

Calcium (Ca)	1000
Ammonium (NH ₄)	400
Magnesium (Mg)	200
Potassium (K)	200
Sodium (Na)	200
Lithium (Li)	50

Cation Mix #3

IC-MCA-03-1 100 mL
At stated conc. (µg/mL) in Dilute
HNO₃ 4 comps.

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

Cation Mix #5

IC-MCA-05-1 100 mL
At stated conc. (µg/mL) in Dilute
HNO₃ 4 comps.

Ammonium (NH ₄)	3
Potassium (K)	6
Sodium (Na)	3
Lithium (Li)	0.5

Cation Mix #6

IC-MCA-06-1 100 mL
At stated conc. (µg/mL) in Dilute
HNO₃ 6 comps.

Calcium (Ca)	2
Ammonium (NH ₄)	1.5
Magnesium (Mg)	2
Potassium (K)	2.5
Sodium (Na)	1.5
Lithium (Li)	0.2

Cation Mix #2

IC-MCA-02-1 100 mL
At stated conc. (µg/mL) in Dilute
HNO₃ 6 comps.

Calcium (Ca)	100
Ammonium (NH ₄)	100
Magnesium (Mg)	100
Potassium (K)	100
Sodium (Na)	100
Lithium (Li)	100

Cation Mix #4

IC-MCA-04-1 100 mL
At stated conc. (µg/mL) in Dilute
HNO₃ 4 comps.

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

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

- ✓ Traceability to NIST SRM by Wet Chemical / Gravimetric Assay
- ✓ Traceability to NIST SRM by Instrumental Analysis
- ✓ Reference to NIST Traceability during product preparation

Wet Chemicals

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

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

Inorganic Constituents

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
 At stated conc. (µg/mL) in Water 6 comps.

F (Fluoride)	20
Cl (Chloride)	30
Br (Bromide)	100
NO ₃ -N (Nitrate-Nitrogen)	100
PO ₄ -P (Phosphate-Phosphorus)	150
SO ₄ (Sulfate)	150

Technical Note

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

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

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

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

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

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

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

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

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

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

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

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

Technical Note

Can also be used for ortho-phosphate analysis.

Technical Note

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

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

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

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

Silica
WC-SIO2-10X-1 100 mL
 1000 µg/mL as Silica (SiO₂) in Water tr. HF

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

Hexavalent Chromium
WC-HEX-10X-1 100 mL
 1000 µg/mL in Water

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 for a calibration curve. Do not shake prior to use.

Alkalinity
WC-ALK-10X-1 100 mL
 1000 µg/mL CaCO₃ to pH 4.5

Hardness
WC-HARD-10X-1 100 mL
 1000 µg/mL equivalent CaCO₃

A combination of Ca and Mg to give an approx. concentration of 1000 µg/mL CaCO₃. Hardness µg/mL equivalent CaCO₃ = 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 Dissolved 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 (After Dilution)

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

Absorbable Organic Halogens (AOX)

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

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 in water, tr. H₂SO₄

Total Inorganic Carbon (TIC)

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

Total Organic Halides (TOX)

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

Total Organic Nitrogen (TON)

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

Total Kjeldahl Nitrogen (TKN)

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

Oil and Grease

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

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

Phenols

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

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

D8083 Nitrogen in Water

Total Nitrogen Stock Calibration Standard

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

Total Nitrogen Stock Laboratory Control Standard

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

Stock TON Test Solution

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

ASTM D8083 Nitrogen Calibration Set

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

TPH, Oil and Grease

EPA Methods

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

Precision and Recovery (PAR) Spiking Solution

M-1664-5ML	1 x 5 mL
M-1664-5ML-PAK	5 x 5 mL
4.0 mg/mL each in Acetone	2 comps.
M-1664-20ML	1 x 20 mL
M-1664-20ML-PAK	5 x 20 mL
4.0 mg/mL each in Acetone	2 comps.
<i>n</i> -Hexadecane	Stearic acid

Technical Note

This Precision and Recovery (PAR) Spiking Solution was developed for Method 1664. This performance based method was developed to replace previous gravimetric procedures incorporating Freon-113 as the extraction solvent for the determination of Oil and Grease and Total Petroleum Hydrocarbons. Each standard is packaged in a flame sealed ampule 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
At stated Vol.%	3 comps.
Chlorobenzene 25.0	<i>n</i> -Hexadecane 37.5
Isooctane 37.5	

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

M-418	1 x 1 mL
M-418-PAK	5 x 1 mL
At stated conc. (mg/mL) in Freon 113	3 comps.
Chlorobenzene 1.05	Isooctane 1.55
<i>n</i> -Hexadecane 1.55	

Method 8440 Total Petroleum Hydrocarbon Analysis

Total Recoverable Petroleum Hydrocarbon Mix

M-8440	1 x 1 mL
M-8440-PAK	5 x 1 mL
At stated Wt.% in Tetrachloroethene	3 comps.
Chlorobenzene 0.10	Isooctane 0.15
<i>n</i> -Hexadecane 0.15	

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON	1 x 1 mL
M-8440-CON-PAK	5 x 1 mL
At stated Vol.%	3 comps.
Chlorobenzene 25.0	Isooctane 37.5
<i>n</i> -Hexadecane 37.5	

Silica Gel Cleanup Calibration Solution

M-8440-SGC	1 x 1 mL
M-8440-SGC-PAK	5 x 1 mL
10.0 mg/mL in Tetrachloroethene	
Corn Oil	

ICP

Multi-Element QC and Second Source QC

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% HNO₃ tr. HF 23 comps.

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

QC Standard #2

QCS-02-1 100 mL
QCS-02-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ tr. HF 7 comps

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

† 1070 µg/mL as SiO₂

QC Standard #2R

QCS-02-R1-1 100 mL
QCS-02-R1-5 500 mL
 100 µg/mL each in 5% HNO₃ tr. HF 7 comps.

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

† 214 µg/mL as SiO₂

QC Standard #3

QCS-03-1 100 mL
QCS-03-5 500 mL
 100 µg/mL each in 5% HNO₃ 15 comps.

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

QC Standard #4

QCS-04-1 100 mL
 At stated conc. (µg/mL) in 5% HNO₃ 19 comps.

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

QC Standard #5

QCS-05-1 100 mL
 At stated conc. (µg/mL) in 2% HNO₃ 3 comps.

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

QC Standard #6

QCS-06-1 100 mL
 1000 µg/mL each in 2% HNO₃ 4 comps.

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

Quality Control Stds. Sets

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

Second Source QC Standards

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

Second Source QC Standard #1

QCS-ASL-7-1 1 x 100 mL
QCS-ASL-7-5 1 x 500 mL
 At stated conc. (µg/mL) in 2-5% HNO₃ tr. HF 7 comps.

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

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% HNO₃ tr. HF 21 comps.

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

Second Source QC Standard #3

QCS-ASL-19-1 1 x 100 mL
QCS-ASL-19-5 1 x 500 mL
 100 µg/mL each in 2-5% HNO₃ tr. HF 19 comps.

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

- NIST Traceable
- Independent Lots
- Exact Match

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

ICP

Screening Standards and Groundwater & Wastewater

Screening Standards

These four Qualitative Standards can be combined to scan samples quickly and easily for elements present. They should be used for element identification only. The concentration of each element is approximately 10 µg/mL. To screen for **all 68 elements** these 4 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% HNO₃ tr. HF 33 comps.

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

Semi-Quantitative Standard #2
SQS-02-R1-1 1 x 100 mL
 10 µg/mL each in 2-5% HNO₃ tr. HCl tr. HF 33 comps.

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

Semi-Quantitative Standard #3
SQS-03-1 1 x 100 mL
 10 µg/mL each in 2-5% HNO₃ 2 comps.

Mercury (Hg)	Silver (Ag)
--------------	-------------

Semi-Quantitative Standard #4
SQS-04-1 1 x 100 mL
 10 µg/mL each in 5% HCl

Gold (Au)

Screening Standard Set	
SQS-R1-1-SET	4 x 100 mL
SQS-01-1	SQS-02-R1-1
SQS-03-1	SQS-04-1

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

Groundwater & Wastewater Standards

Trace Metals I, II, III

Trace Metals I

WPTM-01-1 100 mL
WPTM-01-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 15 comps.

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

Trace Metals II

WPTM-02-1 100 mL
WPTM-02-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 3 comps.

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

Trace Metal Sets	
WPTM-1-SET	3 x 100 mL
WPTM-01-1	WPTM-02-1
WPTM-03-1	
WPTM-5-SET	3 x 500 mL
WPTM-01-5	WPTM-02-5
WPTM-03-5	

Trace Metals III

WPTM-03-1 100 mL
WPTM-03-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ tr. HF 6 comps.

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

Alternate Metals for Groundwater and Wastewater Analysis

Alternate Metals I

WPAM-01-1 100 mL
WPAM-01-5 500 mL
 At stated conc. (µg/mL) in 2% HNO₃ 11 comps.

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

Alternate Metals III

WPAM-03-1 100 mL
WPAM-03-5 500 mL
 At stated conc. (µg/mL) in 2% HNO₃ 4 comps.

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

Alternate Trace Metal Sets	
WPAM-1-SET	2 x 100 mL
WPAM-01-1	WPAM-03-1
WPAM-5-SET	2 x 500 mL
WPAM-01-5	WPAM-03-5

ICP

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% HNO₃ 7 comps.

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

Secondary Drinking Water Metals

SDWA-02-1 100 mL
SDWA-02-5 500 mL
At stated conc. (µg/mL) in 2-5% HNO₃ 4 comps.

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

Mercury Solution

SDWA-03-1 100 mL
SDWA-03-5 500 mL
10 µg/mL in 5% HNO₃

Mercury (Hg)

Drinking Water Sets

SDWA-1-SET	3 x 100 mL	
SDWA-01-1	SDWA-02-1	SDWA-03-1
SDWA-5-SET	3 x 500 mL	
SDWA-01-5	SDWA-02-5	SDWA-03-5

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

Primary Metals for Analysis by ICP

Contains all approved elements

SDWA-04-1 100 mL
SDWA-04-5 500 mL
At stated conc. (µg/mL) in 2-5% HNO₃ 9 comps.

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

Primary Metals for Analysis by ICP-MS

Contains all approved elements

SDWA-06-MS-1 100 mL
SDWA-06-MS-5 500 mL
10 µg/mL each in 2% HNO₃ 11 comps.

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

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% HNO₃ 5 comps.

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

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% HNO₃ 9 comps.

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

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% HNO₃ tr. HF 14 comps.

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

† 214 µg/mL as SiO₂

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% HNO₃ 19 comps.

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

† 214 µg/mL as SiO₂

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

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% HNO₃ 18 comps.

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

MISA Standard 2**Precious Metals**

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

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

MISA Standard 3**Tellurium**

MISA-03-1 100 mL
100 µg/mL in 10% HCl

Tellurium (Te)

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

MISA-04-1 100 mL
100 µg/mL each in 10% HNO₃ 16 comps.

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

MISA Standard 5**Fluoride Soluble Group**

MISA-05-1 100 mL
100 µg/mL each in 5% HNO₃ tr. HF 15 comps.

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

MISA Standard 6**Transition Metals**

MISA-06-1 100 mL
100 µg/mL each in 10% HNO₃ 13 comps.

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

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

ICP

Contract Laboratory Program (CLP)

Calibration Check Standards

Calibration Standard #1

CLP-CAL-01-1 100 mL
5000 µg/mL each in 5% HNO₃ 4 comps.

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

Calibration Standard #2

CLP-CAL-02-1 100 mL
At stated conc. (µg/mL) in 5% HNO₃ 5 comps.

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

Calibration Standard #3

CLP-CAL-03-1 100 mL
At stated conc. (µg/mL) in 5% HNO₃ 7 comps.

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

Calibration Standard #4

CLP-CAL-04-1 100 mL
At stated conc. (µg/mL) in 5% HNO₃ 5 comps.

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

Calibration Standard #5

CLP-CAL-05-1 100 mL
600 µg/mL in 2% HNO₃

Antimony (Sb)

Calibration Standard #6

CLP-CAL-06-1 100 mL
100 µg/mL in 5% HNO₃

Mercury (Hg)

CLP Calibration Standard Set

CLP-CAL-1-SET	6 x 100 mL	
CLP-CAL-01	CLP-CAL-03	CLP-CAL-05
CLP-CAL-02	CLP-CAL-04	CLP-CAL-06

Verification Standards

Initial Calibration Verification

CLP-ICV-01-1 100 mL
CLP-ICV-01-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ tr. HF 22 comps.

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

Initial Calibration Verification

CLP-ICV-01-R-1 100 mL
CLP-ICV-01-R-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ tr. HF 22 comps.

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

Technical Note

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

ICP

Contract Laboratory Program (CLP)

Interference Check & Analyte Standards

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

Primary Analytes

CLP-PAN-01-1	100 mL
CLP-PAN-01-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ 12 comps.	
Silver (Ag)	100
Barium (Ba)	50
Beryllium (Be)	50
Cadmium (Cd)	100
Cobalt (Co)	50
Chromium (Cr)	50
Copper (Cu)	50
Manganese (Mn)	50
Nickel (Ni)	100
Lead (Pb)	100
Vanadium (V)	50
Zinc (Zn)	100

Alternate Interferents

CLP-PIN-02-1	100 mL
CLP-PIN-02-5	500 mL
1000 µg/mL each in 5% HNO ₃ 6 comps.	

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

Alternate Analytes

CLP-PAN-02-1	100 mL
CLP-PAN-02-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ tr. HF 12 comps.	

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

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

Primary Interferents

CLP-PIN-01-1	100 mL
CLP-PIN-01-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ 4 comps.	
Aluminum (Al)	5000
Calcium (Ca)	5000
Iron (Fe)	2000
Magnesium (Mg)	5000

Detection Limit Standards

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

CLP Detection Limits Standard #1

CLP-CRDL-01-1	100 mL
At stated conc. (µg/mL) in 5% HNO ₃ tr. HF 15 comps.	

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

Contract Required Detection Limits (CRDL) Set

CLP-CRDL-1-SET	2 x 100 mL
CLP-CRDL-01	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 two times the instrument detection limit (IDL) while the remaining elements are at two times the CRDL.

CLP Detection Limits Standard #2

CLP-CRDL-02-1	100 mL
At stated conc. (µg/mL) in 5% HNO ₃ tr. HF 15 comps.	

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

Technical Note

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

ICP

EPA Method 200.7

Method 200.7 (Revision 4.4, May 1994) Calibration Standards

Mixed Calibration Standard #1

M-200.7-01-1 100 mL
M-200.7-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ 10 comps.

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

Mixed Calibration Standard #2

M-200.7-02R-1 100 mL
M-200.7-02R-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 6 comps.

Lithium (Li)	50
Molybdenum (Mo)	100
Potassium (K)	200
Sodium (Na)	100
Strontium (Sr)	10
Titanium (Ti)	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% HNO₃ 4 comps.

Cerium (Ce)	20
Cobalt (Co)	20
Phosphorus (P)	100
Vanadium (V)	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% HNO₃ tr. HF 5 comps.

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

† 214 µg/mL as SiO₂

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% HNO₃ 6 comps.

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

Mixed Calibration Stds. Sets

M-200.7-R-1-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-5-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

Method 200.7 Instrument Performance Standards

Instrument Performance Check Std. #1

M-200.7-IPC-01-1 100 mL
M-200.7-IPC-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ 26 comps.

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

Instrument Performance Check Standard #2

M-200.7-IPC-02-1 100 mL
M-200.7-IPC-02-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 5 comps.

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

† 214 µg/mL as SiO₂

Method 200.7 Performance Check, Fortifying Solution & Mercury Standard

Laboratory Performance Check Std.

Used in demonstrating the initial and continuing verification of the calibration curves by this method.

LPCS-01-1 100 mL
LPCS-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 29 comps.

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

† 214 µg/mL as SiO₂

Laboratory Fortifying Stock Solution

Use in preparing the laboratory fortified blank and the laboratory fortified sample matrix.

LFSS-01-1 100 mL
LFSS-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 25 comps.

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

† 53.5 µg/mL as SiO₂

Mercury Standard

In separate solution due to incompatibility with other elements.

TCLP-02-1 100 mL
TCLP-02-5 500 mL

20 µg/mL in 5% HNO₃

Mercury (Hg)

Technical Note

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

ICP

EPA Method 200.7

Method 200.7 Fortifying (Spiking & Instrument Performance Standards)

Instrument Fortifying Standard

M-200.7-LFSS-01-1 100 mL
M-200.7-LFSS-01-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ tr. HF 26 comps.

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

Instrument Fortifying Standard #2

M-200.7-LFSS-02-1 100 mL
M-200.7-LFSS-02-5 500 mL
 20 µg/mL each in 5% HNO₃ tr. HF 5 comps.

Antimony (Sb)
Molybdenum (Mo)
Silicon (Si) †
Tin (Sn)
Titanium (Ti)
† 42.78 µg/mL as SiO ₂

Method 200.7 Spiking Solutions for Drinking Water

Spiking Standard #1R

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

Boron (B)	400
Molybdenum (Mo)	200
Silicon (Si) †	2000
Phosphorus (P)	400
† 4278 µg/mL SiO ₂	

Spiking Standard #2R

M-200.7-SP-02-R 50 mL
M-200.7-SP-02-R-1 100 mL
M-200.7-SP-02-R-5 500 mL
 10,000 µg/mL each in 2% HNO₃ 4 comps.

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

Spiking Standard #3

M-200.7-SP-03 50 mL
 At stated conc. (µg/mL) in 5% HNO₃ 12 comps.

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

Spiking Standard #4R

M-200.7-SP-04-R 50 mL
 200 µg/mL in dilute HNO₃

Antimony (Sb)

Spiking Standard #5R

M-200.7-SP-05-R 50 mL
 At stated conc. (µg/mL) in 5% HNO₃ 5 comps.

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

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	

Method 200.7 Interference Check Standards

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

SIC Solution #1

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

SICS-01-1 100 mL
SICS-01-5 500 mL
 50 µg/mL in Water tr. NH₄OH

Molybdenum (Mo)

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% HNO₃ 5 comps.

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

SIC Solution #3

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

SICS-03-1 100 mL
SICS-03-5 500 mL
 At stated conc. (µg/mL) in 2% HNO₃ 3 comps.

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

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	

ICP

EPA Method 6010

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

Mixed Calibration Standard #1

MCS-01-1 100 mL
MCS-01-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 6 comps.

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

Mixed Calibration Standard #2

MCS-02-1 100 mL
MCS-02-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 5 comps.

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

Mixed Calibration Standard #3R

MCS-03R-1 100 mL
MCS-03R-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ tr. HF 2 comps.

Arsenic (As)	500
Molybdenum (Mo)	100

Mixed Calibration Standard #4R

MCS-04R-1 100 mL
MCS-04R-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 8 comps.

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

Mixed Calibration Standard #5R

MCS-05R-1 100 mL
MCS-05R-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 4 comps.

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

Mixed Calibration Standard 6R

MCS-06R-1 100 mL
MCS-06R-5 500 mL
At stated conc. (µg/mL) in 2-5% HNO₃, tr. HF 5 comps.

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

† 214 µg/mL as SiO₂

Complete Calibration Set 6010B, Rev. 2, 1996 and 6010C, Rev. 3, 2000

MCS-1996-1-SET 7 x 100 mL
MCS-01-1 MCS-04R-1 MCS-06R-1
MCS-02-1 MCS-05R-1 TCLP-02-1
MCS-03R-1

MCS-1996-5-SET 7 x 500 mL
MCS-01-5 MCS-04R-5 MCS-06R-5
MCS-02-5 MCS-05R-5 TCLP-02-5
MCS-03R-5

Technical Note

Additional Analyte Calibration Standards.

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

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% HNO₃

Mercury (Hg)

Method 6010B Spiking Standards

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

Spiking Standard #1

QCS-01-1 100 mL
QCS-01-5 500 mL
100 µg/mL each in 5% HNO₃ tr. HF 23 comps.

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

Spiking Standard #2

QCS-02-1 100 mL
QCS-02-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ tr. HF 7 comps.

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

† 1070 µg/mL as SiO₂

QC Standard #2R

QCS-02-R1-1 100 mL
QCS-02-R1-5 500 mL
100 µg/mL each in 5% HNO₃ tr. HF 7 comps.

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

† 214 µg/mL as SiO₂

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% HNO₃

Mercury (Hg)

ICP

EPA Method 6010

Method 6010B (Rev. 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. ($\mu\text{g/mL}$) in 5% HNO_3 tr. HF
30 comps.

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

† 214 $\mu\text{g/mL}$ as SiO_2

Primary Interferents

CLP-PIN-01-1 100 mL
CLP-PIN-01-5 500 mL
At stated conc. ($\mu\text{g/mL}$) in 5% HNO_3 4 comps.

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

Alternate Interferents

CLP-PIN-02-1 100 mL
CLP-PIN-02-5 500 mL
1000 $\mu\text{g/mL}$ each in 5% HNO_3 6 comps.

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

Set-up Solution

Nebulizer Adjustment Solution

ICP-69N-1 100 mL
1000 $\mu\text{g/mL}$ in 2% HNO_3

Yttrium (Y)

ICP Alternate Source

The Alternate Source Line (ASL) formulations match products from instrument manufacturers. These calibration and testing standards have been formulated to be used for specific instrument setup and verification.

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Agilent	356-357
Perkin Elmer	357-360
Horiba/Jobin Yvon	360
Teledyne	360
Merck	361-362

Cross Reference Part No. Index

Instrument	Matching Cat. No.	Instrument	Matching Cat. No.	Instrument	Matching Cat. No.
Agilent		Perkin Elmer		Horiba/Jobin Yvon	
5183-4681	AG-INT	N9300215	PE-WPAM3 ♦	JYICP-MIXHM	JY-CALHM ♦
5183-4682	AG-VER1	N9300216	PE-SDWA1 ♦	JYICP-MIXMAJ	JY-CAL
5183-4687	AG-SPIKE	N9300217	PE-SDWA2 ♦	JYICP-MIX7HSI	JY-QC7
5183-4688	AG-CAL	N9300218	PE-CAL4	JYICP-MIX9	JY-CHK ♦
5188-6524	AG-TUN	N9300219	PE-CAL5 ♦	JYICP-MIX21	JY-QC21
5188-6525	AG-INTSTD	N9300220	PE-CAL6 ♦	JYICP-MIX23	JY-QC23
5188-6526	AG-INTFR-6020 ♦	N9300221	PE-CAL7 ♦	JYICP-QC1	JY-CHK1 ♦
5188-6527	AG-INTFR2-6020 ♦	N9300224	PE-CRDL1 * ♦	Teledyne	
5188-6564	AG-TUNSTOCK	N9300225	PE-CRDL2 ♦	601-3110	TELE-CHK1 *
5190-0465	AG-TUNSTOCK1	N9300226	PE-INTA ♦	601-4101	TELE-CHK2 * ♦
8500-6940	AG-MECAL2A	N9300227	PE-ANAB ♦	601-4102	TELE-CHK3 * ♦
8500-6942	AG-MECAL4	N9300228	PE-ALTINTA ♦	602-00065	TELE-CHK4 ♦
8500-6944	AG-MECAL1	N9300229	PE-ALTB ♦	602-00067	TELE-CHK4 ♦
8500-6948	AG-MECAL3	N9300230	PE-SPIKE ♦	602-00068	TELE-CHK5 ♦
190024400	VAR-TUN ♦	N9300231	PE-MECAL1	602-00070	TELE-CHK5 ♦
190064800	AG-INTFA ♦	N9300232	PE-MECAL2	602-00071	TELE-CHK6 ♦
190024900	AG-ICV7	N9300233	PE-MECAL3	602-00073	TELE-CHK6 ♦
190025000	AG-QCS27	N9300234	PE-MECAL4	620-403	TELE-CHK7 ♦
190025100	AG-ANALTB	N9300235	PE-MECAL5	602-00125	TELE-CHK8-0.1X * ♦
6610030000	AG-WAVECAL-10X	N9300280	PE-QC7	Merck	
6610030100	AG-WAVECAL	N9300281	PE-QC21	1.09410	MES-23 ♦
6610030400	AG-INT2	N9301720	PE-MECAL3	1.09411	MES-24
6610030500	AG-CAL1	N9301721	PE-CAL2	1.09480	MES-13 *
6610030600	AG-CAL2	N9302946	PE-VISWAVE	1.09481	MES-14
6610030700	AG-CALMAJOR	N9303816	PE-CAL1	1.09482	MES-15 ♦
Perkin Elmer		N9303818	PE-CAL3	1.09487	MES-16
N0582152	PE-UVWAVE	N9303821	PE-CHK1	1.09490	MES-12 *
N0691579	PE-MCS ♦	N9303822	PE-CHK3	1.09491	MES-11 * ♦
N0691580	PE-UV	N9303823	PE-CHK4	1.09492	MES-08 *
N8122014	PE-SETUP2 *	N9303824	PE-CHK5	1.09493	MES-10 *
N8122017	PE-CRDL3 * ♦	N9303825	PE-VER1	1.09494	MES-09 *
N8125030	PE-STAB *	N9303826	PE-VER2	1.09495	MES-17
N8125031	PE-CRDL4 * ♦	N9303827	PE-INTFRA ♦	1.09496	MES-19 * ♦
N8125032	PE-SETUP1 *	N9303828	PE-INTFR1 ♦	1.09497	MES-20 * ♦
N8125034	PE-SENS * ♦	N9303829	PE-INTFRB ♦	1.09498	MES-21 ♦
N8125040	PE-SMTUNE *	N9303830	PE-INTFR2 ♦	1.09499	MES-22 *
N8125041	PE-SMTUNE2 *	N9303831	PE-INTFRC ♦	1.09500	MES-18
N9300200	PE-MCS1 ♦	N9303832	PE-INT	1.10322	MES-07
N9300201	PE-MCS2 ♦	N9303834	PE-MEINT ♦	1.10580	MES-06 *
N9300202	PE-MCS3 ♦	N9303835	PE-MEM1 ♦	1.10714	MES-05 * ♦
N9300203	PE-MCS4 ♦	N9303836	PE-MEM2 ♦	1.11355	MES-04
N9300204	PE-MCS5 ♦	N9303839	PE-SPIKE1 ♦	1.15474	MES-01
N9300205	PE-ICS18	N9303840	PE-SPIKE2 ♦	1.15626	MES-03 ♦
N9300208	PE-ICS5	N9303841	PE-SPIKE3 ♦	1.15708	MES-02 ♦
N9300211	PE-WPTM1	N9303843	PE-TUNSOL		
N9300212	PE-WPTM2	N9307113	PE-MES1 ♦		
N9300213	PE-WPTM3	N9307114	PE-MES2 ♦		
N9300214	PE-WPAM1 ♦	N9307115	PE-MES3 ♦		
		N9307116	PE-MES4 ♦		

* Similar formulation
♦ Custom Products

Not affiliated with the companies and brands. They appear for the purpose of cross reference with the corresponding products.

ICP Alternate Source

Agilent

Matching Cat. No. equivalent of Agilent

ICP-OES Wavelength Calibration Solution

AG-WAVECAL-ASL-1	100 mL
AG-WAVECAL-ASL-5	500 mL
AG-WAVECAL-ASL-10X-1	100 mL
AG-WAVECAL-ASL-10X-5	500 mL
At stated conc. (µg/mL) in 1% HNO ₃	15 comps.

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

ICP/MS Stock Tuning Solution

AG-TUNSTOCK-ASL-1	100 mL
AG-TUNSTOCK-ASL-5	500 mL
10 µg/mL in 2% HNO ₃	5 comps.

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

ICP/MS Stock Tuning Solution

AG-TUNSTOCK1-ASL-1	100 mL
AG-TUNSTOCK1-ASL-5	500 mL
10 µg/mL in 2% HNO ₃	6 comps.

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

Internal Standard Mix for ICP/MS

AG-INTSTD-ASL-1	100 mL
AG-INTSTD-ASL-5	500 mL
100 µg/mL in 10% HNO ₃ , tr. HCl	8 comps.

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

QCSTD-27 Quality Control Std

AG-QC27-ASL-1	100 mL
AG-QC27-ASL-5	500 mL
100 µg/mL in 5% HNO ₃ , tr. HF	27 comps.

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

7500 Series PA Tuning 1

AG-TUN1-ASL-1	100 mL
AG-TUN1-ASL-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃	26 comps.

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

7500 Series PA Tuning 2

AG-TUN2-ASL-1	100 mL
AG-TUN2-ASL-5	500 mL
At stated conc. (µg/mL) in 10% HCl, 1% HNO ₃ tr. HF	8 comps.

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

PA Tuning Solution Sets

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

AG-TUN1-ASL-1 AG-TUN2-ASL-1

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

AG-TUN1-ASL-5 AG-TUN2-ASL-5

Environmental Spike Mix

AG-SPIKE-ASL-R1-1	100 mL
AG-SPIKE-ASL-R1-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ tr. HF	24 comps.

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

Environmental Initial Calibration

AG-VER1-ASL-R1-1	100 mL
AG-VER1-ASL-R1-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃	26 comps.

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

ICV-7 Quality Control Standard

AG-ICV7-ASL-1	100 mL
AG-ICV7-ASL-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃	22 comps.

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

ANALT-B Quality Control Std

AG-ANALTB-ASL-1	100 mL
AG-ANALTB-ASL-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃	12 comps.

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

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ICP Alternate Source

Agilent / Perkin Elmer

Matching Cat. No. equivalent of Agilent

Environmental Calibration Std.

AG-CAL-ASL-1	100 mL
AG-CAL-ASL-5	500 mL

At stated conc. (µg/mL) in 10% HNO₃ 25 comps.

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

Calibration Mix 1 AA & ICP-OES

AG-CAL1-ASL-1	100 mL
AG-CAL1-ASL-5	500 mL

100 µg/mL each in 2% HNO₃ tr. HF 4 comps.

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

Calibration Mix 2 AA & ICP-OES

AG-CAL2-ASL-1	100 mL
AG-CAL2-ASL-5	500 mL

100 µg/mL each in 5% HNO₃ 18 comps.

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

Calibration Mix Majors For AA & ICP-OES

AG-CALMAJOR-ASL-1	100 mL
AG-CALMAJOR-ASL-5	500 mL

500 µg/mL each in 5% HNO₃ 5 comps.

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

Internal Standard Mix

AG-INT-ASL-1	100 mL
AG-INT-ASL-5	500 mL

10 µg/mL each in 5% HNO₃ 7 comps.

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

ICP Internal Standard

AG-INT2-ASL-1	100 mL
AG-INT2-ASL-5	500 mL

100 µg/mL each in 5% HNO₃ 6 comps.

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

Multi-Element Calibration Std. 1

AG-MECAL1-ASL-1	100 mL
AG-MECAL1-ASL-5	500 mL

10 µg/mL each in 5% HNO₃ 17 comps.

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

Multi-Element Calibration Std. 2A

AG-MECAL2A-ASL-1	100 mL
AG-MECAL2A-ASL-5	500 mL

10 µg/mL each in 5% HNO₃ 27 comps.

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

Multi-Element Calibration Std. 3

AG-MECAL3-ASL-R-1	100 mL
AG-MECAL3-ASL-R-5	500 mL

10 µg/mL each in 10% HCl, 1% HNO₃ 10 comps.

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

Multi-Element Calibration Std. 4

AG-MECAL4-ASL-R1-1	100 mL
AG-MECAL4-ASL-R1-5	500 mL

10 µg/mL each in Water, tr. HF 13 comps.

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

Not affiliated with the companies and brands. They appear for the purpose of cross reference with the corresponding products.

Matching Cat. No. of equivalent Perkin Elmer

Instrument Calibration Std. 1

PE-CAL1-ASL-1	100 mL
PE-CAL1-ASL-5	500 mL

20 µg/mL each in 2% HNO₃ tr. Tartaric acid 20 comps.

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

Instrument Calibration Std. 2

PE-CAL2-ASL-1	100 mL
PE-CAL2-ASL-5	500 mL

100 µg/mL each in 5% HNO₃ tr. HF, tr. Tartaric acid 26 comps.

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

Instrument Calibration Std. 3

PE-CAL3-ASL-1	100 mL
PE-CAL3-ASL-5	500 mL

1000 µg/mL each in 5% HNO₃ 5 comps.

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

Instrument Calibration Std. 1

PE-CAL4-ASL-1	100 mL
PE-CAL4-ASL-5	500 mL

5000 µg/mL each in 5% HNO₃ 4 comps.

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

Multi-Element Calibration Std. 2A

AG-MECAL2A-ASL-1	100 mL
AG-MECAL2A-ASL-5	500 mL

10 µg/mL each in 5% HNO₃ 27 comps.

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

ICP Alternate Source

Perkin Elmer

Matching Cat. No. equivalent of Perkin Elmer

Instrument Check Standard 1

PE-CHK1-ASL-1 100 mL
 PE-CHK1-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ tr. HF, tr. Tartaric acid
 17 comps.

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

Instrument Check Standard 3

PE-CHK3-ASL-1 100 mL
 PE-CHK3-ASL-5 500 mL
 200 µg/mL each in 2% HNO₃ 5 comps.

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

Instrument Check Standard 4

PE-CHK4-ASL-1 100 mL
 PE-CHK4-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ 3 comps.

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

Instrument Check Standard 5

PE-CHK5-ASL-1 100 mL
 PE-CHK5-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ tr. HF 4 comps.

Molybdenum (Mo)	Strontium (Sr)
Tin (Sn)	Titanium (Ti)

Interference Check Standard 5

PE-ICSS-ASL-1 100 mL
 PE-ICSS-ASL-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 5 comps.

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

Interference Check Standard 18

PE-ICSS18-ASL-1-SET 2 x 100 mL
 PE-ICSS18-ASL-5-SET 2 x 500 mL

PE-ICSS18-ASL

At stated conc. (µg/mL) in 5% HNO₃ 16 comps.

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

PE-ICSS18-HG-ASL

100 µg/mL in 5% HNO₃

Mercury (Hg)

Supplied separately for better product stability.

Internal Standard Mix

PE-INT-ASL-1 100 mL
 PE-INT-ASL-5 500 mL
 10 µg/mL each in 5% HNO₃ 7 comps.

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

Multi-Element Calibration Std 1

PE-MECAL1-ASL-1 100 mL
 PE-MECAL1-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ 9 comps.

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

Multi-Element Calibration Std 2

PE-MECAL2-ASL-1 100 mL
 PE-MECAL2-ASL-5 500 mL
 10 µg/mL each in 5% HNO₃ 17 comps.

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

Multi-Element Calibration Std 3

PE-MECAL3-ASL-1-SET 2 x 100 mL
 PE-MECAL3-ASL-5-SET 2 x 500 mL

PE-MECAL3-ASL

10 µg/mL each in 5% HNO₃ 29 comps.

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

PE-MECAL3-HG-ASL

10 µg/mL in 5% HNO₃

Mercury (Hg)

Supplied separately for better product stability.

Multi-Element Calibration Std 4

PE-MECAL4-ASL-R1-1 100 mL
 PE-MECAL4-ASL-R1-5 500 mL
 10 µg/mL each in 10% HCl, 1% HNO₃ 10 comps.

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

Multi-Element Calibration Std 5

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

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

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ICP Alternate Source

Perkin Elmer

Matching Cat. No. equivalent of Perkin Elmer

QC Standard 7 Elements

PE-QC7-ASL-1 100 mL
PE-QC7-ASL-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF
7 comps.

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

QC Standard 21 Elements

PE-QC21-ASL-1 100 mL
PE-QC21-ASL-5 500 mL

100 µg/mL each in 5% HNO₃, tr. HF, tr. Tartaric acid
21 comps.

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

ELAN 9000/6X00 Dual Detector

Calibration Solution

PE-SETUP1-ASL-1 100 mL
PE-SETUP1-ASL-5 500 mL

2 µg/mL each in 2% HNO₃ tr. HCl 5 comps.

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

Supplied as a 10X concentrate 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 1% HNO₃ tr. HCl 11 comps.

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

Supplied as a 100X concentrate for better stability.

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% HNO₃ tr. HCl 9 comps.

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

Supplied as a 100X concentrate for better stability.

SmartTune Solution for

ELAN/DRC-e

PE-SMTUNE-ASL-1 100 mL
PE-SMTUNE-ASL-5 500 mL

1 µg/mL each in 2% HNO₃ tr. HCl 9 comps.

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

Supplied as a 100X concentrate for better stability.

SmartTune Solution for DRC/

DRC^{Plus}/DRC II

PE-SMTUNE2-ASL-1 100 mL
PE-SMTUNE2-ASL-5 500 mL

At stated conc. (µg/mL) in 0.5% HNO₃ 10 comps.

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

Supplied as a 1000X concentrate for better stability.

Tuning Solution I

PE-TUNSOL-ASL-1 100 mL
PE-TUNSOL-ASL-5 500 mL

10 µg/mL each in 2% HNO₃, tr. HCl 12 comps.

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

Low UV Standard

PE-UV-ASL-1 100 mL
PE-UV-ASL-5 500 mL

10 µg/mL each in 2% HNO₃ 3 comps.

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

UV Wavecal Solution

PE-UVWAVE-ASL-R1-1 100 mL
PE-UVWAVE-ASL-R1-5 500 mL

At stated conc. (µg/mL) in 5% HCl tr. HNO₃
12 comps.

Potassium (K)	100
Phosphorus (P)	100
Sulfur (S)	100
Arsenic (As)	20
Lanthanum (La)	20
Lithium (Li)	20
Manganese (Mn)	20
Molybdenum (Mo)	20
Sodium (Na)	20
Nickel (Ni)	20
Scandium (Sc)	20
Calcium (Ca)	1

VIS Wavecal Solution

PE-VISWAVE-ASL-1 100 mL
PE-VISWAVE-ASL-5 500 mL

At stated conc. (µg/mL) in 2% HNO₃ 8 comps.

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

Initial Calibration Verification

Standard 2

PE-VER2-ASL-R1-1 100 mL
PE-VER2-ASL-R1-5 500 mL

10 µg/mL each in 2% HNO₃ tr. HF 2 comps.

Tin (Sn)	Titanium (Ti)
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Initial Calibration Verification

Standard 1

PE-VER1-ASL-1 100 mL
PE-VER1-ASL-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. Tartaric acid
26 comps.

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

Not affiliated with the companies and brands. They appear for the purpose of cross reference with the corresponding products.

ICP Alternate Source

Perkin Elmer and Horiba/Jobin Yvon & Teledyne

Matching Cat. No. equivalent of PE

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% HNO₃ 14 comps.

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

PE-WPTM1-HG-ASL

10 µg/mL in 5% HNO₃

Mercury (Hg)

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% HNO₃ 3 comps.

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

Trace Metals III

PE-WPTM3-ASL-1	100 mL
PE-WPTM3-ASL-5	500 mL

At stated conc. (µg/mL) in 2% HNO₃ 6 comps.

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

Matching Cat. No. Horiba/Jobin Yvon

Instrument Calibration Standard

JY-CAL-ASL-1	100 mL
JY-CAL-ASL-5	500 mL

5000 µg/mL each in 2-5% HNO₃ 4 comps.

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

Quality Control Standard 7

JY-QC7-ASL-1	100 mL
JY-QC7-ASL-5	500 mL

At stated conc. (µg/mL) in 5% HNO₃ 7 comps.

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

Quality Control Standard 21

JY-QC21-ASL-1	100 mL
JY-QC21-ASL-5	500 mL

100 µg/mL each in 2-5% HNO₃ tr. HF 21 comps.

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

Quality Control Standard 23

JY-QC23-ASL-1	100 mL
JY-QC23-ASL-5	500 mL

1000 µg/mL each in 2-5% HNO₃ 23 comps.

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

Matching Cat. No. Teledyne

Check Mate 1

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

TELE-CHK1-ASL

At stated conc. (µg/mL) in 5% HCl, 1% HNO₃ tr. HF 24 comps.

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

TELE-CHK1-AG-ASL

1000 µg/mL in 2% HNO₃

Silver (Ag)

Supplied separately for better product stability.

Not affiliated with the companies and brands.
They appear for the purpose of cross reference
with the corresponding products.

ICP Alternate Source

Merck

Matching Cat. No. equivalent of Merck

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 HNO₃ 19 comps.

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

ICP Multi-Element Standard Solution IV

MES-04-1 100 mL
MES-04-5 500 mL
1000 µg/mL each in 1 mol/L HNO₃ 23 comps.

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

ICP Multi-Element Standard Solution VII

MES-07-1 100 mL
MES-07-5 500 mL
100 µg/mL each in Water tr. HNO₃ 9 comps.

Ammonium (NH ₄)	Magnesium (Mg)
Barium (Ba)	Manganese (Mn)
Calcium (Ca)	Sodium (Na)
Potassium (K)	Strontium (Sr)
Lithium (Li)	

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 HNO₃ tr. HF 29 comps.

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

MES-06-TE
10 µg/mL in 10% HCl
Tellurium (Te)

Supplied separately for better stability

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 HNO₃ 23 comps.

MES-08

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

MES-08-TE
100 µg/mL in 10% HCl
Tellurium (Te)

Supplied separately for better stability

ICP Multi-Element Standard Solution IX

MES-09-1-SET 2x100 mL
MES-09-5-SET 2x500 mL
100 µg/mL each in 1 mol/L HNO₃ 8 comps.

MES-09
Arsenic (As) Chromium (Cr)
Beryllium (Be) Nickel (Ni)
Lead (Pb) Selenium (Se)
Cadmium (Cd) Thallium (Tl)

MES-09-HG
100 µg/mL in 1 mol/L HNO₃
Mercury (Hg)

Supplied separately for better stability.

ICP Multi-Element Standard Solution X

MES-10-1 100 mL
MES-10-5 500 mL
At stated conc. (µg/mL) in 1 mol/L HNO₃ 23 comps.

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

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

ICP Multi-Element Standard Solution XII

MES-12-1-SET 2x100 mL
MES-12-5-SET 2x500 mL
1000 µg/mL each 5% HCl tr. HNO₃ 7 comps.

MES-12-R1
Arsenic (As) Silicon (Si)
Molybdenum (Mo) Tungsten (W)
Phosphorus (P) Vanadium (V)
Sulfur (S)

MES-12-ZR
1000 µg/mL in 5% HCl
Zirconium (Zr)

Supplied separately for better product stability

ICP Multi-Element Standard Solution XIII

MES-13-1-SET 2x100 mL
MES-13-5-SET 2x500 mL
At stated conc.(µg/mL) in 5% HNO₃ 14 comps.

MES-13

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

MES-13-HG
5 µg/mL each in 5% HNO₃
Mercury (Hg)

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. HNO₃ 11 comps.

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

Not affiliated with the companies and brands.
They appear for the purpose of cross reference
with the corresponding products.

ICP Alternate Source

Merck

Matching Cat. No. equivalent of Merck

ICP Multi-Element

Standard Solution XVI

MES-16-1 100 mL
MES-16-5 500 mL
100 µg/mL each in 5% HNO₃ tr. HF
21 comps.

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

ICP Multi-Element

Standard Solution XVII

MES-17-1 100 mL
MES-17-5 500 mL
100 µg/mL each in 15% HCl tr.
HNO₃ 7 comps.

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

ICP Multi-Element

GF AAS

Standard Solution XVIII

MES-18-R1-1 100 mL
MES-18-R1-5 500 mL
At stated conc. (µg/mL) in 5%
HNO₃ 16 comps.

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

ICP Multi-Element

Standard Solution XXI

for MS

MES-21-1-SET 2x100 mL
MES-21-5-SET 2x500 mL
10 µg/mL each in 5% HNO₃
29 comps.

MES-21

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

MES-21-HG

10 µg/mL in 5% HHNO₃
Mercury (Hg)

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% HNO₃ tr. HCl
5 comps.

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

Supplied as a 10X concentrate for
better stability.

ICP Multi-Element

Standard Solution XXIV

MES-24-1 100 mL
MES-24-5 500 mL
At stated conc. (µg/mL) in 1%
HNO₃ 15 comps.

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

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ASTM D3230 Determination of Salts in Crude Oil

Mixed Salt Solution

D-3230-89-1			100 mL
D-3230-89-5			500 mL
At stated conc. (µg/mL) in Alcohol Solution (1-butanol : MeOH) (ratio 63:37) 3 comps.			
Calcium chloride	10	Sodium chloride	70
Magnesium chloride	20		

ASTM D3237 Lead in Gasoline by AA Spectroscopy

Lead Standard Calibration Curve

D-3237-CAL-SET 4 x 100 mL

Set includes the following Catalog Numbers:

Description	Cat. No.	100 mL
Blank 1% Aliquat 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	

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

Trace Metals Standard

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

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

Standards of Interest

See 369-374 for a complete listing of Wear Metal Standards.

ASTM D3831 Manganese in Gasoline by AA Spectroscopy

Manganese Stock Solution

D-3831-1 1 x 100 mL

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

D-3831-R1-1 1 x 100 mL

400 mg/L in Methyl isobutyl ketone

Manganese

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

Tartaric Acid / Hydrochloric Acid Solution

D-5184-91-TA-5 1 x 500 mL

Tartaric acid @ 0.5% w/v in 4% HCl

Aluminum Standard Solution

D-5184-91-AL-1 1 x 100 mL
D-5184-91-AL-5 1 x 500 mL

Aluminum @ 1000 µg/mL in 5 % HCl

Silicon Standard Solution

D-5184-91-SI-1 1 x 100 mL
D-5184-91-SI-5 1 x 500 mL

Silicon @ 1000 µg/mL in water tr. NaOH tr. HF

ICP/MS

Multi-Element Standards

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

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.

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% HNO₃ 17 comps.

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

Calibration Standard 2

ICP-MS-CAL2-1 100 mL
10 µg/mL each in 5% HNO₃ 29 comps.

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

Calibration Standard 3

ICP-MS-CAL3-R-1 100 mL
10 µg/mL each in 10% HCl, 1% HNO₃ 10 comps.

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

Calibration Standard 4

ICP-MS-CAL4-1 100 mL
10 µg/mL each in Water tr. HF 12 comps.

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

Calibration Standard 5

ICP-MS-CAL5-1 100 mL
10 µg/mL in 5% HNO₃

Element	Most Abundant Isotope
Mercury (Hg)	202

Calibration Standard Set

ICP-MS-CAL-R-1-SET 5 x 100 mL
ICP-MS-CAL1-1 ICP-MS-CAL4-1
ICP-MS-CAL2-1 ICP-MS-CAL5-1
ICP-MS-CAL3-R-1

Matrix Blanks

Nitric Acid Blank

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

5% HNO₃ in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

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

5% HCl in 18 Megohm ASTM Type I deionized Water

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

Water Blank

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

18 Megohm ASTM Type I deionized Water

ICP/MS

Multi-Element Standards

Tuning Solutions

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

ICP-MS-TUNSOL1-1 100 mL
100 µg/mL each in 2% HNO₃ 8 comps.

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

ICP-MS-TUNSOL2-1 100 mL
100 µg/mL each in 2% HNO₃ 13 comps.

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

Interference Check Standards

Solution A

ICP-MS-INTA-1 100 mL
At stated conc. (µg/mL) in 1% HNO₃ 12 comps.

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

Solution B

ICP-MS-INTB-1 100 mL
At stated conc. (µg/mL) in 2% HNO₃ 11 comps.

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

Interference Check Standard Set

ICP-MS-INT-1-SET 2 x 100 mL
ICP-MS-INTA-1 ICP-MS-INTB-1

Memory Check 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% HNO₃ 24 comps.

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

ICP-MS-MEMCHKA2-R1 100 mL
20 µg/mL In 2% HNO₃

Element	Most Abundant Isotope
Silver (Ag)	107

Solution B

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

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

Technical Note

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

ICP/MS

Multi-Element Standards

Spiking Standards

Spiking Standard for Water

ICP-MS-SPIKE-W-1 100 mL

At stated conc. (µg/mL) in 5% HNO₃ 17 comps.

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

Spiking Standard for Soil

ICP-MS-SPIKE-S-1 100 mL

At stated conc. (µg/mL) in 5% HNO₃ 15 comps.

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

Spiking Standard Set

ICP-MS-SPIKE-1-SET 2 x 100 mL
ICP-MS-SPIKE-W-1 ICP-MS-SPIKE-S-1

Quality Control

Sample 1

ICP-MS-QC1-1 100 mL

10 µg/mL each in 2% HNO₃ 9 comps.

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

Sample 2

ICP-MS-QC2-1 100 mL

10 µg/mL each in 5% HNO₃ 25 comps

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

Sample 3

ICP-MS-QC3-1 100 mL

10 µg/mL each in 5% HNO₃ tr. HF 21 comps.

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

Internal Standards

Single Internal Standards

For your convenience we offer two concentrations.

Element	Matrix	Unit	10 µg/mL	100 µg/mL
Bismuth	2-5% HNO	100 mL	ICP-MS-IS-BI-1	ICP-MS-IS-BI-10X-1
Holmium	2-5% HNO	100 mL	ICP-MS-IS-HO-1	ICP-MS-IS-HO-10X-1
Indium	2-5% HNO ₃	100 mL	ICP-MS-IS-IN-1	ICP-MS-IS-IN-10X-1
Lutetium	2-5% HNO ₃	100 mL	ICP-MS-IS-LU-1	ICP-MS-IS-LU-10X-1
Lithium-6	2-5% HNO ₃	100 mL	ICP-MS-IS-LI6-1	ICP-MS-IS-LI6-10X-1
Rhodium	10% HCl	100 mL	ICP-MS-IS-RH-1	ICP-MS-IS-RH-10X-1
Scandium	2-5% HNO ₃	100 mL	ICP-MS-IS-SC-1	ICP-MS-IS-SC-10X-1
Terbium	2-5% HNO ₃	100 mL	ICP-MS-IS-TB-1	ICP-MS-IS-TB-10X-1
Yttrium	2-5% HNO ₃	100 mL	ICP-MS-IS-Y-1	ICP-MS-IS-Y-10X-1

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% HNO₃ 7 comps.

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

ICP/MS

EPA Method 200.8 & 6020

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% HNO₃ tr. HF 18 comps.

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

Calibration Standard #2

ICP-MS-200.8-CAL2-1 100 mL
10 µg/mL each in 2% HNO₃ 2 comps.

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

Calibration Standard #1R (1994 Version)

ICP-MS-200.8-CAL1R-1 100 mL
At stated conc. (µg/mL) in 2% HNO₃ tr. HF 18 comps.

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

Calibration Standard #3

ICP-MS-200.8-CAL3-1 100 mL
1 component in 5% HNO₃

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

Internal Standards

Internal Standard #1

ICP-MS-200.8-IS-1 100 mL
100 µg/mL each in 2% HNO₃ 5 comps.

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

Internal Standard #2

ICP-MS-200.8-IS2-1 100 mL
100 µg/mL in 2% HNO₃

Element	Most Abundant Isotope
Gold (Au)	197

see previous pg for
single element internal standards

Tuning Standard

ICP-MS-200.8-TUN-1 100 mL
10 µg/mL each in 2% HNO₃ 5 comps.

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

Method 6020 Standards for Inductively Coupled Mass Spectrometry

Calibration Standard

ICP-MS-6020-CAL-R-1 100 mL
10 µg/mL each in 2% HNO₃ 22 comps.

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

Interference Check Standard #1

ICP-MS-6020-INT1-1 100 mL
At stated conc. (µg/mL) in 2% HNO₃ 12 comps.

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

Interference Check Standard #2

ICP-MS-6020-INT2-1 100 mL
2 µg/mL each in 5% HNO₃ tr. HF 9 comps.

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

Tuning Standard

ICP-MS-6020-TUN-1 100 mL
10 µg/mL each in 2% HNO₃ 4 comps.

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

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

Matrix Oil and Stabilizer

75 cSt Oil

MOSOL-75 500 mL

Stabilizer

WM-STAB 1 x 50 g

Technical Note

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

Metals Additives

MA-900-100G 100 g
MA-900-200G 200 g

900 µg/g each in Base oil

MA-1000-100G 100 g
MA-1000-200G 200 g

1000 µg/g each in Base oil

MA-3000-100G 100 g
MA-3000-200G 200 g

3000 µg/g each in Base oil

MA-5000-100G 100 g
MA-5000-200G 200 g

5000 µg/g each in Base oil 5 comps.

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

Organometallic Standards

AA, ICP, DCP & XRF Analysis

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

WM-21-100G-SET

7 x 100 g

WM-21-200G-SET

7 x 200 g

21 Wear Metals in base oil at the stated conc.

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

22 Wear Metal Multi-Element

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

7 x 100 g

200 gram Set WM-22-200G-SET

7 x 200 g

21 Wear Metals plus K in base oil at the stated conc.

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

23 Wear Metal Multi-Element

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

7 x 100 g

200 gram Set WM-23-200G-SET

7 x 200 g

21 Wear Metals plus K and Sb in base oil at the stated conc.

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

Organometallic Standards

Premium Sulfur-Free

Organometallic Single Element Stock Standards

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

- Stabilized
- Ready for Use

Technical Note

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

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-90X-1

100 mL Set WM-21-NMS-1-SET
7 x 100 mL

21 Wear Metal in Mineral oil at the stated concentration.

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

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	

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

Organometallic standards do not
require a hazardous shipping fee
except where noted.

Technical Note

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

Organometallic Standards

AA, ICP, DCP & XRF Analysis

Sulfur and Metals in Oil

Test Method A - ICP with an Organic Solvent Specimen Solution

Sulfur and Metals in Mineral Oil

Designed for ASTM D5708					
ASTM-P-0102-SET 12 x 100 mL					
Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0102-01	0.00	0.00	0.00	0.00	
ASTM-P-0102-02	0.50	300	10.0	500	
ASTM-P-0102-03	1.00	500	100	25.0	
ASTM-P-0102-04	0.00	100	80.0	250	
ASTM-P-0102-05	2.00	200	40.0	100	
ASTM-P-0102-06	2.50	400	5.00	400	
ASTM-P-0102-07	3.00	0.00	60.0	300	
ASTM-P-0102-08	3.50	500	0.00	200	
ASTM-P-0102-09	0.00	100	100	0.00	
ASTM-P-0102-10	4.50	300	50.0	250	
ASTM-P-0102-11	5.00	200	20.0	500	
ASTM-P-0102-12	5.50	50.0	100	50.0	

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	0.00	0.00	0.00	
ASTM-P-0103-02	0.50	300	10.0	500	
ASTM-P-0103-03	1.00	500	100	25.0	
ASTM-P-0103-04	0.00	100	80.0	250	
ASTM-P-0103-05	2.00	200	40.0	100	
ASTM-P-0103-06	2.50	400	5.00	400	
ASTM-P-0103-07	3.00	0.00	60.0	300	
ASTM-P-0103-08	3.50	500	0.00	200	
ASTM-P-0103-09	0.00	100	100	0.00	
ASTM-P-0103-10	4.50	300	50.0	250	
ASTM-P-0103-11	5.00	200	20.0	500	
ASTM-P-0103-12	5.50	50	100	50.0	

Stock Multi-Element Standard in Mineral Oil

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

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

Stock Multi-Element Standard in Mineral Oil

D-5863-00A-10X-1 1 x 100 mL
At stated conc. (µg/g) in 20 cst Mineral Oil
3 comps.

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

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

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

ASTM-P-0104-SET 9 x 100 mL		
Cat. No.	Vanadium Conc. (Wt.%)	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	

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	

Internal Standard

ASTM-P-0107-5 500 mL
Manganese @ 0.05 Wt. % in Xylene-Mineral Oil

Organometallic Standards

AA, ICP, DCP & XRF Analysis

Lubricating Oil Standards

Elements in Lubricating Oil

ASTM-P-0108-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Elements in Lubricating Oil

ASTM-P-0109-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Elements in Lubricating Oil

ASTM-P-0110-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Elements in Lubricating Oil

ASTM-P-0111-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Elements in Lubricating Oil

ASTM-P-0112-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Elements in Lubricating Oil

ASTM-P-0113-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Organometallic Standards

AA, ICP, DCP & XRF Analysis

Lubricating Oil Standards (Continued)

Elements in Lubricating Oil

ASTM-P-0114-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Elements in Lubricating Oil

ASTM-P-0115-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Elements in Lubricating Oil

ASTM-P-0116-SET

11 x 100 mL

Designed for ASTM D6481

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

Elements in Lubricating Oil

ASTM-P-0117-SET

10 x 100 mL

Designed for ASTM D6443

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

Elements in Lubricating Oil

ASTM-P-0118-SET

10 x 100 mL

Designed for ASTM D4628, D4927, D4951, D6443

Cat. No.	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

Organometallic Standards

AA, ICP, DCP & XRF Analysis

Lubricating Oil Standards (Continued)

Elements in Lubricating Oil

ASTM-P-0119-SET

22 x 100 mL

Designed for ASTM D4927, D6443, D6481 & D7751

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

Standards of Interest

Concentrations for the sets on pages 371-374 are targets. Actual production lots may vary.

Metal Working Fluids

ASTM-P-0121-SET

13 x 100 mL

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

Elements in Lubricating Oil

ASTM-P-0120-SET

23 x 100 mL

Designed for ASTM D4927, D6443 & D6481

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

Elements in Lubricating Oil

ASTM-P-0127-SET

11 x 100 mL

Designed for Test Method IP 501

Cat # Nominal Value	Al (Wt.%)	Ca (Wt.%)	Fe (Wt.%)	Na (Wt.%)	Ni (Wt.%)	P (Wt.%)	S (Wt.%)	Si (Wt.%)	V (Wt.%)	Zn (Wt.%)
ASTM-P-0127-01	0.0005	0.0010	0.0250	0.0010	0.0050	0.0020	5.0000	0.0050	0.0075	0.0010
ASTM-P-0127-02	0.0100	0.0075	0.0100	0.0000	0.0005	0.0005	2.0000	0.0100	0.0300	0.0002
ASTM-P-0127-03	0.0010	0.0100	0.0000	0.0020	0.0000	0.0010	0.5000	0.0000	0.0350	0.0050
ASTM-P-0127-04	0.0025	0.0030	0.0050	0.0200	0.0075	0.0050	4.0000	0.0250	0.0050	0.0040
ASTM-P-0127-05	0.0075	0.0040	0.0150	0.0005	0.0100	0.0075	0.3000	0.0200	0.0000	0.0015
ASTM-P-0127-06	0.0050	0.0000	0.0075	0.0015	0.0040	0.0100	1.0000	0.0030	0.0100	0.0075
ASTM-P-0127-07	0.0150	0.0050	0.0200	0.0100	0.0020	0.0040	0.7250	0.0150	0.0010	0.0000
ASTM-P-0127-08	0.0000	0.0005	0.0010	0.0000	0.0010	0.0000	0.1000	0.0010	0.0200	0.0020
ASTM-P-0127-09	0.0025	0.0020	0.0005	0.0050	0.0150	0.0025	2.5000	0.0050	0.0005	0.0005
ASTM-P-0127-10	0.0050	0.0150	0.0025	0.0150	0.0025	0.0015	3.0000	0.0025	0.0025	0.0010
ASTM-P-0127-11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Custom Quotation Request Form

Company :

Contact : Job Function:

Address :

Postal Code: Town: Country:

Telephone : FAX :

Email : URL :

Area of Interest :

Product Description :

Concentration :

Matrix :

Concentration Units :

- ng/ml
- µg/ml
- mg/ml
- wt. %
- vol. %

Requested Quantity :

Organic	Inorganic
<input type="checkbox"/> 5 x 1 ml	<input type="checkbox"/> ___ x 500 ml
<input type="checkbox"/> Others __ x __	

Component(s)

Concentration (if various)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.

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The logo for TECHLAB is presented in a white rectangular box. The word "TECHLAB" is written in a bold, sans-serif font. The letters "T", "E", "C", "H", and "A" are blue, while the letters "L" and "B" are grey. The box has a thin grey border at the top and bottom.

TECHLAB

Matériaux de Référence certifiés et Equipements de Laboratoire

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