

Inorganic Standards

For ICP, ICP-MS, AA, and Ion Chromatography

ULTRA offers hundreds of NIST traceable inorganic products, including EnviroConcentrates™ for ICP and AA analysis, as well as standards for TCLP, ICP-MS, and inorganic environmental methods.

All standards are manufactured under ULTRA's ISO 9001 registered quality system and verified by ULTRA's ISO 17025 accredited laboratory. ICP and ICP-MS standards are prepared from starting materials having a purity of 99.999% (where possible), high purity acids, and ASTM Type I water (18 megohm). Standards are traceable to NIST standard reference materials (SRMs) whenever possible.



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ULTRAgade® ICP / ICP-MS Standards from ULTRA Scientific



- ✓ Starting Material 99.999% Pure, Wherever Possible
- ✓ ASTM Type 1, Low TOC (<50 ppb) Water
- ✓ ICP/ICP-MS Standards Packaged in Pre-Cleaned LDPE Bottles
- ✓ ULTRAgade® Documentation
- ✓ Traceable to NIST SRM and Independent Source
- ✓ Concentration Confirmed by ICP and/or ICP-MS

ULTRAgade® Documentation

Product Identity — ULTRAgade™ Solution Arsenic ICP Standard 10,000 µg/mL

Starting Material Specifications — Starting Material: Arsenic (III) Oxide 99.999% N7000-17 2% nitric acid 74.91

Certified Value — Certified Value: 10001 µg/mL

Weights Traceable to NIST — Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Traceability Information:
 A. vs. NIST SRM
 B. vs. Independent Lot

Trace Metal Impurities — Trace Metal Impurities in Solution Standard in µg/mL:

Al	<0.03	NO	As	<0.03	NO	Br	<0.03	NO	Ca	<0.03	NO	Co	<0.03	NO	Cu	<0.03	NO	Fe	<0.03	NO	Ga	<0.03	NO	Ge	<0.03	NO	Gr	<0.03	NO	Hf	<0.03	NO	Ir	<0.03	NO	K	<0.03	NO	La	<0.03	NO	Mn	<0.03	NO	Mo	<0.03	NO	Nb	<0.03	NO	Ni	<0.03	NO	P	<0.03	NO	Pb	<0.03	NO	Rb	<0.03	NO	Rh	<0.03	NO	Ru	<0.03	NO	S	<0.03	NO	Sb	<0.03	NO	Se	<0.03	NO	Si	<0.03	NO	Sn	<0.03	NO	Strontium	<0.03	NO	Ta	<0.03	NO	Tb	<0.03	NO	Tc	<0.03	NO	Ti	<0.03	NO	V	<0.03	NO	W	<0.03	NO	Xe	<0.03	NO	Y	<0.03	NO	Zn	<0.03	NO	Zr	<0.03	NO
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Solution Density — Density of Solution (measured at 20°C ± 0.5°C): 1.016 g/mL

Laboratory Accreditation — ISO 17025 Cat. No. 9901-01

Unique Lot # and Expiration Date — Catalog Number: ICP-133 Lot Number: E00613 Job Number: J00004261 Expiration Date: 12/2009

Certified by ULTRA Scientific — Dr. Edward Fitzgerald, Senior Scientist

Single Element Standards for ICP and ICP-MS

ULTRAGrade® Quality

- ✓ Manufactured and tested under ULTRA's ISO 9001 and ISO 17025 quality systems
- ✓ Starting materials are 99.999% pure, wherever possible
- ✓ Analyzed for trace metal impurities
- ✓ Traceable to NIST SRMs, wherever possible
- ✓ Confirmed against an independent second-source standard



New! One Liter Size Available!

New! Get 25% More Free!

ULTRA has increased the volume from 100 to 125 mL at NO ADDITIONAL CHARGE!

ULTRAGrade® NIST Traceable Single Element Solution Standards for ICP/ICP-MS

Element	NIST SRM	Volume	1000 µg/mL		10,000 µg/mL	
			Catalog #	Price	Catalog #	Price
Aluminum (Al) <i>in dilute HNO₃</i>	3101	125 mL	ICP-013	***	ICP-113	***
		4 x 125 mL	ICP-013-5	***	ICP-113-5	***
		1 L	ICP-013-L	***	ICP-113-L	***
Antimony (Sb) <i>in dilute HNO₃ / tr. tartaric</i>	3102	125 mL	ICP-051	***	ICP-151	***
		4 x 125 mL	ICP-051-5	***	ICP-151-5	***
		1 L	ICP-051-L	***	ICP-151-L	***
Arsenic (As) <i>in dilute HNO₃</i>	3103	125 mL	ICP-033	***	ICP-133	***
		4 x 125 mL	ICP-033-5	***	ICP-133-5	***
		1 L	ICP-033-L	***	ICP-133-L	***
Barium (Ba) <i>in dilute HNO₃</i>	3104	125 mL	ICP-056	***	ICP-156	***
		4 x 125 mL	ICP-056-5	***	ICP-156-5	***
		1 L	ICP-056-L	***	ICP-156-L	***
Beryllium (Be) <i>in dilute HNO₃</i>	3105	125 mL	ICP-004	***	ICP-104	***
		4 x 125 mL	ICP-004-5	***	ICP-104-5	***
		1 L	ICP-004-L	***	ICP-104-L	***
Bismuth (Bi) <i>in dilute HNO₃</i>	3106	125 mL	ICP-083	***	ICP-183	***
		4 x 125 mL	ICP-083-5	***	–	–
		1 L	ICP-083-L	***	–	–
Boron (B) <i>in H₂O / trace NH₄OH</i>	3107	125 mL	ICP-005	***	ICP-105	***
		4 x 125 mL	ICP-005-5	***	ICP-105-5	***

ULTRAgade® NIST Traceable Single Element Solution Standards for ICP/ICP-MS

Element	NIST SRM	Volume	1000 µg/mL		10,000 µg/mL	
			Catalog #	Price	Catalog #	Price
Cadmium (Cd) <i>in dilute HNO₃</i>	3108	1 L	ICP-005-L	***	ICP-105-L	***
		125 mL	ICP-048	***	ICP-148	***
		4 x 125 mL	ICP-048-5	***	ICP-148-5	***
Calcium (Ca) <i>in dilute HNO₃</i>	3109	1 L	ICP-048-L	***	ICP-148-L	***
		125 mL	ICP-020	***	ICP-120	***
		4 x 125 mL	ICP-020-5	***	ICP-120-5	***
Cerium (Ce) <i>in dilute HNO₃</i>	3110	1 L	ICP-020-L	***	ICP-120-L	***
		125 mL	ICP-058	***	ICP-158	***
		4 x 125 mL	ICP-058-5	***	–	–
Cesium (Cs) <i>in dilute HNO₃</i>	3111	1 L	ICP-058-L	***	–	–
		125 mL	ICP-055	***	ICP-155	***
		4 x 125 mL	ICP-055-5	***	–	–
Chromium (Cr) <i>in dilute HNO₃</i>	3112	1 L	ICP-055-L	***	–	–
		125 mL	ICP-024	***	ICP-124	***
		4 x 125 mL	ICP-024-5	***	ICP-124-5	***
Chromium VI (Cr^{VI}) <i>in H₂O</i>	3112	1 L	ICP-024-L	***	ICP-124-L	***
		125 mL	ICP-024A	***	–	–
		4 x 125 mL	ICP-024A-5	***	–	–
Cobalt (Co) <i>in dilute HNO₃</i>	3113	1 L	ICP-024A-L	***	–	–
		125 mL	ICP-027	***	ICP-127	***
		4 x 125 mL	ICP-027-5	***	ICP-127-5	***
Copper (Cu) <i>in dilute HNO₃</i>	3114	1 L	ICP-027-L	***	ICP-127-L	***
		125 mL	ICP-029	***	ICP-129	***
		4 x 125 mL	ICP-029-5	***	ICP-129-5	***
Dysprosium (Dy) <i>in dilute HNO₃</i>	3115	1 L	ICP-029-L	***	ICP-129-L	***
		125 mL	ICP-066	***	ICP-166	***
		4 x 125 mL	ICP-066-5	***	–	–
Erbium (Er) <i>in dilute HNO₃</i>	3116	1 L	ICP-066-L	***	–	–
		125 mL	ICP-068	***	ICP-168	***
		4 x 125 mL	ICP-068-5	***	–	–
Europium (Eu) <i>in dilute HNO₃</i>	3117	1 L	ICP-068-L	***	–	–
		125 mL	ICP-063	***	ICP-163	***
		4 x 125 mL	ICP-063-5	***	–	–
Gadolinium (Gd) <i>in dilute HNO₃</i>	3118	1 L	ICP-063-L	***	–	–
		125 mL	ICP-064	***	ICP-164	***
		4 x 125 mL	ICP-064-5	***	–	–

ULTRAGrade® NIST Traceable Single Element Solution Standards for ICP/ICP-MS

Element	NIST SRM	Volume	1000 µg/mL		10,000 µg/mL	
			Catalog #	Price	Catalog #	Price
Gallium (Ga) <i>in dilute HNO₃</i>	3119	1 L	ICP-064-L	***	–	–
		125 mL	ICP-031	***	ICP-131	***
		4 x 125 mL	ICP-031-5	***	–	–
Germanium (Ge) <i>in H₂O / trace HF</i>	3120	1 L	ICP-031-L	***	–	–
		125 mL	ICP-032	***	ICP-132	***
		4 x 125 mL	ICP-032-5	***	–	–
Gold (Au) <i>in dilute HCl</i>	3121	1 L	ICP-032-L	***	–	–
		125 mL	ICP-079	***	ICP-179	***
		4 x 125 mL	ICP-079-5	***	ICP-179-5	***
Hafnium (Hf) <i>in dilute HCl</i>	3122	1 L	ICP-079-L	***	ICP-179-L	***
		125 mL	ICP-072	***	ICP-172	***
		4 x 125 mL	ICP-072-5	***	–	–
Holmium (Ho) <i>in dilute HNO₃</i>	3123	1 L	ICP-072-L	***	–	–
		125 mL	ICP-067	***	ICP-167	***
		4 x 125 mL	ICP-067-5	***	–	–
Indium (In) <i>in dilute HNO₃</i>	3124	1 L	ICP-067-L	***	–	–
		125 mL	ICP-049	***	ICP-149	***
		4 x 125 mL	ICP-049-5	***	–	–
Iridium (Ir) <i>in dilute HCl</i>	N/A	1 L	ICP-049-L	***	–	–
		125 mL	ICP-077	***	ICP-177	***
		4 x 125 mL	ICP-077-5	***	–	–
Iron (Fe) <i>in dilute HNO₃</i>	3126	1 L	ICP-077-L	***	–	–
		125 mL	ICP-026	***	ICP-126	***
		4 x 125 mL	ICP-026-5	***	ICP-126-5	***
Lanthanum (La) <i>in dilute HNO₃</i>	3127	1 L	ICP-026-L	***	ICP-126-L	***
		125 mL	ICP-057	***	ICP-157	***
		4 x 125 mL	ICP-057-5	***	–	–
Lead (Pb) <i>in dilute HNO₃</i>	3128	1 L	ICP-057-L	***	–	–
		125 mL	ICP-082	***	ICP-182	***
		4 x 125 mL	ICP-082-5	***	ICP-182-5	***
Lithium (Li) <i>in dilute HNO₃</i>	3129	1 L	ICP-082-L	***	ICP-182-L	***
		125 mL	ICP-003	***	ICP-103	***
		4 x 125 mL	ICP-003-5	***	ICP-103-5	***
Lutetium (Lu) <i>in dilute HNO₃</i>	3130	1 L	ICP-003-L	***	ICP-103-L	***
		125 mL	ICP-071	***	ICP-171	***
		4 x 125 mL	ICP-071-5	***	–	–

ULTRAgade® NIST Traceable Single Element Solution Standards for ICP/ICP-MS

Element	NIST SRM	Volume	1000 µg/mL		10,000 µg/mL	
			Catalog #	Price	Catalog #	Price
Magnesium (Mg) <i>in dilute HNO₃</i>	3131	1 L	ICP-071-L	***	–	–
		125 mL	ICP-012	***	ICP-112	***
		4 x 125 mL	ICP-012-5	***	ICP-112-5	***
Manganese (Mn) <i>in dilute HNO₃</i>	3132	1 L	ICP-012-L	***	ICP-112-L	***
		125 mL	ICP-025	***	ICP-125	***
		4 x 125 mL	ICP-025-5	***	ICP-125-5	***
Mercury (Hg) <i>in dilute HNO₃</i>	3133	1 L	ICP-025-L	***	ICP-125-L	***
		125 mL	ICP-080	***	ICP-180	***
		4 x 125 mL	ICP-080-5	***	ICP-180-5	***
Molybdenum (Mo) <i>in H₂O / trace NH₄OH</i>	3134	1 L	ICP-080-L	***	ICP-180-L	***
		125 mL	ICP-042	***	ICP-142	***
		4 x 125 mL	ICP-042-5	***	ICP-142-5	***
Neodymium (Nd) <i>in dilute HNO₃</i>	3135	1 L	ICP-042-L	***	ICP-142-L	***
		125 mL	ICP-060	***	ICP-160	***
		4 x 125 mL	ICP-060-5	***	–	–
Nickel (Ni) <i>in dilute HNO₃</i>	3136	1 L	ICP-060-L	***	–	–
		125 mL	ICP-028	***	ICP-128	***
		4 x 125 mL	ICP-028-5	***	ICP-128-5	***
Niobium (Nb) <i>in H₂O / trace HF</i>	3137	1 L	ICP-028-L	***	ICP-128-L	***
		125 mL	ICP-041	***	ICP-141	***
		4 x 125 mL	ICP-041-5	***	–	–
Palladium (Pd) <i>in dilute HNO₃</i>	3138	1 L	ICP-041-L	***	–	–
		125 mL	ICP-046	***	ICP-146	***
		4 x 125 mL	ICP-046-5	***	–	–
Phosphorus (P) <i>in dilute HNO₃</i>	3139	1 L	ICP-046-L	***	–	–
		125 mL	ICP-015	***	ICP-115	***
		4 x 125 mL	ICP-015-5	***	ICP-115-5	***
Platinum (Pt) <i>in dilute HCl</i>	3140	1 L	ICP-015-L	***	ICP-115-L	***
		125 mL	ICP-078	***	ICP-178	***
		4 x 125 mL	ICP-078-5	***	ICP-178-5	***
Potassium (K) <i>in dilute HNO₃</i>	3141	1 L	ICP-078-L	***	ICP-178-L	***
		125 mL	ICP-019	***	ICP-119	***
		4 x 125 mL	ICP-019-5	***	ICP-119-5	***
Praseodymium (Pr) <i>in dilute HNO₃</i>	3142	1 L	ICP-019-L	***	ICP-119-L	***
		125 mL	ICP-059	***	ICP-159	***
		4 x 125 mL	ICP-059-5	***	–	–

ULTRAGrade® NIST Traceable Single Element Solution Standards for ICP/ICP-MS

Element	NIST SRM	Volume	1000 µg/mL		10,000 µg/mL	
			Catalog #	Price	Catalog #	Price
Rhenium (Re) <i>in H₂O</i>	3143	1 L	ICP-059-L	***	–	–
		125 mL	ICP-075	***	ICP-175	***
		4 x 125 mL	ICP-075-5	***	–	–
Rhodium (Rh) <i>in dilute HCl</i>	3144	1 L	ICP-075-L	***	–	–
		125 mL	ICP-045	***	–	–
		4 x 125 mL	–	–	–	–
Rubidium (Rb) <i>in dilute HNO₃</i>	3145	1 L	–	–	–	–
		125 mL	ICP-037	***	ICP-137	***
		4 x 125 mL	ICP-037-5	***	–	–
Ruthenium (Ru) <i>in dilute HCl</i>	N/A	1 L	ICP-037-L	***	–	–
		4 x 125 mL	ICP-044	***	ICP-144	***
		4 x 125 mL	ICP-044-5	***	–	–
Samarium (Sm) <i>in dilute HNO₃</i>	3147	1 L	ICP-044-L	***	–	–
		125 mL	ICP-062	***	ICP-162	***
		4 x 125 mL	ICP-062-5	***	–	–
Scandium (Sc) <i>in dilute HNO₃</i>	3148	1 L	ICP-062-L	***	–	–
		125 mL	ICP-021	***	ICP-121	***
		4 x 125 mL	ICP-021-5	***	ICP-121-5	***
Selenium (Se) <i>in dilute HNO₃</i>	3149	1 L	ICP-021-L	***	ICP-121-L	***
		125 mL	ICP-034	***	ICP-134	***
		4 x 125 mL	ICP-034-5	***	ICP-134-5	***
Silicon (Si) <i>in dilute HNO₃</i>	3150	1 L	ICP-034-L	***	ICP-134-L	***
		125 mL	ICP-014	***	ICP-114	***
		4 x 125 mL	ICP-014-5	***	ICP-114-5	***
Silica (SiO₂) <i>in dilute NaOH</i>	N/A	1 L	ICP-014-L	***	ICP-114-L	***
		125 mL	ICP-014A	***	–	–
		4 x 125 mL	ICP-014A-5	***	–	–
Silver (Ag) <i>in dilute HNO₃</i>	3151	1 L	ICP-014A-L	***	–	–
		125 mL	ICP-047	***	ICP-147	***
		4 x 125 mL	ICP-047-5	***	ICP-147-5	***
Sodium (Na) <i>in dilute HNO₃</i>	3152	1 L	ICP-047-L	***	ICP-147-L	***
		125 mL	ICP-011	***	ICP-111	***
		4 x 125 mL	ICP-011-5	***	ICP-111-5	***
Strontium (Sr) <i>in dilute HNO₃</i>	3153	1 L	ICP-011-L	***	ICP-111-L	***
		125 mL	ICP-038	***	ICP-138	***
		4 x 125 mL	ICP-038-5	***	ICP-138-5	***

ULTRAgade® NIST Traceable Single Element Solution Standards for ICP/ICP-MS

Element	NIST SRM	Volume	1000 µg/mL		10,000 µg/mL	
			Catalog #	Price	Catalog #	Price
Sulfur (S) <i>in H₂O</i>	3154	1 L	ICP-038-L	***	ICP-138-L	***
		125 mL	ICP-016	***	ICP-116	***
		4 x 125 mL	ICP-016-5	***	ICP-116-5	***
Tantalum (Ta) <i>in H₂O / trace HF</i>	3155	1 L	ICP-016-L	***	ICP-116-L	***
		125 mL	ICP-073	***	ICP-173	***
		4 x 125 mL	ICP-073-5	***	–	–
Tellurium (Te) <i>in dilute HCl</i>	3156	1 L	ICP-073-L	***	–	–
		125 mL	ICP-052	***	ICP-152	***
		4 x 125 mL	ICP-052-5	***	–	–
Terbium (Tb) <i>in dilute HNO₃</i>	3157	1 L	ICP-052-L	***	–	–
		125 mL	ICP-065	***	ICP-165	***
		4 x 125 mL	ICP-065-5	***	–	–
Thallium (Tl) <i>in dilute HNO₃</i>	3158	1 L	ICP-065-L	***	–	–
		125 mL	ICP-081	***	ICP-181	***
		4 x 125 mL	ICP-081-5	***	ICP-181-5	***
Thorium (Th) <i>in dilute HNO₃</i>	3159	1 L	ICP-081-L	***	ICP-181-L	***
		125 mL	ICP-090	***	ICP-190	***
		4 x 125 mL	ICP-090-5	***	–	–
Thulium (Tm) <i>in dilute HNO₃</i>	3160	1 L	ICP-090-L	***	–	–
		125 mL	ICP-069	***	ICP-169	***
		4 x 125 mL	ICP-069-5	***	–	–
Tin (Sn) <i>in dilute HNO₃</i>	3161	1 L	ICP-069-L	***	–	–
		125 mL	ICP-050	***	ICP-150	***
		4 x 125 mL	ICP-050-5	***	ICP-150-5	***
Titanium (Ti) <i>in dilute NH₄OH</i>	3162	1 L	ICP-050-L	***	ICP-150-L	***
		125 mL	ICP-022	***	ICP-122	***
		4 x 125 mL	ICP-022-5	***	ICP-122-5	***
Tungsten (W) <i>in H₂O / trace NH₄OH</i>	3163	1 L	ICP-022-L	***	ICP-122-L	***
		125 mL	ICP-074	***	ICP-174	***
		4 x 125 mL	ICP-074-5	***	–	–
Uranium (U) <i>in dilute HNO₃</i>	3164	1 L	ICP-074-L	***	–	–
		125 mL	ICP-092	***	ICP-192	***
		4 x 125 mL	ICP-092-5	***	–	–
Vanadium (V) <i>in dilute HNO₃ / trace HF</i>	3165	1 L	ICP-092-L	***	–	–
		125 mL	ICP-023	***	ICP-123	***
		4 x 125 mL	ICP-023-5	***	ICP-123-5	***

ULTRAGrade® NIST Traceable Single Element Solution Standards for ICP/ICP-MS

Element	NIST SRM	Volume	1000 µg/mL		10,000 µg/mL	
			Catalog #	Price	Catalog #	Price
Ytterbium (Yb) <i>in dilute HNO₃</i>	3166	1 L	ICP-023-L	***	ICP-123-L	***
		125 mL	ICP-070	***	ICP-170	***
		4 x 125 mL	ICP-070-5	***	–	–
Yttrium (Y) <i>in dilute HNO₃</i>	3167	1 L	ICP-070-L	***	–	–
		125 mL	ICP-039	***	ICP-139	***
		4 x 125 mL	ICP-039-5	***	–	–
Zinc (Zn) <i>in dilute HNO₃</i>	3168	1 L	ICP-039-L	***	–	–
		125 mL	ICP-030	***	ICP-130	***
		4 x 125 mL	ICP-030-5	***	ICP-130-5	***
Zirconium (Zr) <i>in dilute HNO₃</i>	3169	1 L	ICP-030-L	***	ICP-130-L	***
		125 mL	ICP-040	***	ICP-140	***
		4 x 125 mL	ICP-040-5	***	–	–

Single Elements Kit for the Contract Laboratory Program

ULTRA has assembled all the necessary elemental standards required for CLP work. Each element is ULTRAGrade® quality, and traced to a NIST SRM.

Kit – contains twenty-three bottles:

125 mL of each @ 1000 µg/mL:

aluminum (Al)	calcium (Ca)	magnesium (Mg)	silver (Ag)
antimony (Sb)	chromium (Cr)	manganese (Mn)	sodium (Na)
arsenic (As)	cobalt (Co)	mercury (Hg)	thallium (Tl)
barium (Ba)	copper (Cu)	nickel (Ni)	vanadium (V)
beryllium (Be)	iron (Fe)	potassium (K)	zinc (Zn)
cadmium (Cd)	lead (Pb)	selenium (Se)	

ICPK-3

Kit

EnviroConcentrate™ Kits

A Unique Product for ICP and ICP-MS

The proven quality of ULTRA without the HAZMAT fees!

High concentration (10,000 µg/mL) ULTRAgrade® standards ideally suited for:

- ✓ Elimination of HAZMAT Fees: Require a standard to be shipped overnight but want to avoid the HAZMAT shipping fee? Because they are small quantities, EnviroConcentrates™ can be easily shipped without incurring HAZMAT fees.
- ✓ Calibration Curve Construction: At 10,000 µg/mL EnviroConcentrates™ can be easily diluted to produce any additional concentrations required.
- ✓ Custom Blends: EnviroConcentrates™ offer convenient and economical stock solutions for preparing in-house custom blends.
- ✓ Starting material is 99.999% pure, wherever possible
- ✓ NIST SRM traceable, wherever possible

Kit Includes:

- ✓ 20 mL of analyte solution @ 10,000 µg/mL
- ✓ 500 mL of ASTM Type I water
- ✓ 125 mL pre-cleaned LDPE bottle for storage

Yields 2 x 100 mL 1000 ppm standards



Element		Catalog #	Price	Element		Catalog #	Price
Aluminum (Al) <i>in dilute HNO₃</i>	Kit	ECK-013	***	Mercury (Hg) <i>in dilute HNO₃</i>	Kit	ECK-080	***
Antimony (Sb) <i>in dilute HNO₃ / tr. tartaric</i>	Kit	ECK-051	***	Molybdenum (Mo) <i>in H₂O / trace NH₄OH</i>	Kit	ECK-042	***
Arsenic (As) <i>in dilute HNO₃</i>	Kit	ECK-033	***	Nickel (Ni) <i>in dilute HNO₃</i>	Kit	ECK-028	***
Barium (Ba) <i>in dilute HNO₃</i>	Kit	ECK-056	***	Phosphorus (P) <i>in dilute HNO₃</i>	Kit	ECK-015	***
Beryllium (Be) <i>in dilute HNO₃</i>	Kit	ECK-004	***	Potassium (K) <i>in dilute HNO₃</i>	Kit	ECK-019	***
Boron (B) <i>in H₂O / trace NH₄OH</i>	Kit	ECK-005	***	Selenium (Se) <i>in dilute HNO₃</i>	Kit	ECK-034	***
Cadmium (Cd) <i>in dilute HNO₃</i>	Kit	ECK-048	***	Silicon (Si) <i>in dilute HNO₃ / trace HF</i>	Kit	ECK-014	***
Calcium (Ca) <i>in dilute HNO₃</i>	Kit	ECK-020	***	Silver (Ag) <i>in dilute HNO₃</i>	Kit	ECK-047	***
Chromium (Cr) <i>in dilute HNO₃</i>	Kit	ECK-024	***	Sodium (Na) <i>in dilute HNO₃</i>	Kit	ECK-011	***
Cobalt (Co) <i>in dilute HNO₃</i>	Kit	ECK-027	***	Strontium (Sr) <i>in dilute HNO₃</i>	Kit	ECK-038	***
Copper (Cu) <i>in dilute HNO₃</i>	Kit	ECK-029	***	Thallium (Tl) <i>in dilute HNO₃</i>	Kit	ECK-081	***
Iron (Fe) <i>in dilute HNO₃</i>	Kit	ECK-026	***	Tin (Sn) <i>in dilute HNO₃</i>	Kit	ECK-050	***
Lead (Pb) <i>in dilute HNO₃</i>	Kit	ECK-082	***	Titanium (Ti) <i>in dilute HNO₃ / trace HF</i>	Kit	ECK-022	***
Lithium (Li) <i>in dilute HNO₃</i>	Kit	ECK-003	***	Vanadium (V) <i>in dilute HNO₃ / trace HF</i>	Kit	ECK-023	***
Magnesium (Mg) <i>in dilute HNO₃</i>	Kit	ECK-012	***	Zinc (Zn) <i>in dilute HNO₃</i>	Kit	ECK-030	***
Manganese (Mn) <i>in dilute HNO₃</i>	Kit	ECK-025	***				

Single Element Standards for AA

ULTRAGrade® Quality

- ✓ Manufactured and tested under ULTRA's ISO 9001 and ISO 17025 quality systems
- ✓ Starting materials 99.99% pure, wherever possible
- ✓ Traceable to NIST SRMs, wherever possible
- ✓ Confirmed against an independent second-source standard



ULTRAGrade® NIST Traceable Single Element Solution Standards for AA

1000 µg/mL				1000 µg/mL			
Element	Volume	Catalog #	Price	Element	Volume	Catalog #	Price
Aluminum (Al)	125 mL	IAA-213	***	Erbium (Er)	125 mL	IAA-268	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-213-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-268-5	***
Antimony (Sb)	125 mL	IAA-251	***	Europium (Eu)	125 mL	IAA-263	***
<i>in dilute HNO₃/tr. tartaric</i>	4 x 125 mL	IAA-251-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-263-5	***
Arsenic (As)	125 mL	IAA-233	***	Gadolinium (Gd)	125 mL	IAA-264	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-233-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-264-5	***
Barium (Ba)	125 mL	IAA-256	***	Gallium (Ga)	125 mL	IAA-231	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-256-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-231-5	***
Beryllium (Be)	125 mL	IAA-204	***	Germanium (Ge)	125 mL	IAA-232	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-204-5	***	<i>in H₂O/trace HF</i>	4 x 125 mL	IAA-232-5	***
Bismuth (Bi)	125 mL	IAA-283	***	Gold (Au)	125 mL	IAA-279	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-283-5	***	<i>in dilute HCl</i>	4 x 125 mL	IAA-279-5	***
Boron (B)	125 mL	IAA-205	***	Hafnium (Hf)	125 mL	IAA-272	***
<i>in H₂O/trace NH₄OH</i>	4 x 125 mL	IAA-205-5	***	<i>in dilute HCl</i>	4 x 125 mL	IAA-272-5	***
Cadmium (Cd)	125 mL	IAA-248	***	Holmium (Ho)	125 mL	IAA-267	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-248-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-267-5	***
Calcium (Ca)	125 mL	IAA-220	***	Indium (In)	125 mL	IAA-249	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-220-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-249-5	***
Cerium (Ce)	125 mL	IAA-258	***	Iridium (Ir)	125 mL	IAA-277	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-258-5	***	<i>in dilute HCl</i>	4 x 125 mL	IAA-277-5	***
Cesium (Cs)	125 mL	IAA-255	***	Iron (Fe)	125 mL	IAA-226	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-255-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-226-5	***
Chromium (Cr)	125 mL	IAA-224	***	Lanthanum (La)	125 mL	IAA-257	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-224-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-257-5	***
Cobalt (Co)	125 mL	IAA-227	***	Lead (Pb)	125 mL	IAA-282	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-227-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-282-5	***
Copper (Cu)	125 mL	IAA-229	***	Lithium (Li)	125 mL	IAA-203	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-229-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-203-5	***
Dysprosium (Dy)	125 mL	IAA-266	***	Lutetium (Lu)	125 mL	IAA-271	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-266-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-271-5	***

ULTRAGrade® NIST Traceable Single Element Solution Standards for AA

1000 µg/mL				1000 µg/mL			
Element	Volume	Catalog #	Price	Element	Volume	Catalog #	Price
Magnesium (Mg)	125 mL	IAA-212	***	Silver (Ag)	125 mL	IAA-247	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-212-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-247-5	***
Manganese (Mn)	125 mL	IAA-225	***	Sodium (Na)	125 mL	IAA-211	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-225-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-211-5	***
Mercury (Hg)	125 mL	IAA-280	***	Strontium (Sr)	125 mL	IAA-238	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-280-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-238-5	***
Molybdenum (Mo)	125 mL	IAA-242	***	Sulfur (S)	125 mL	IAA-216	***
<i>in dilute NH₄OH</i>	4 x 125 mL	IAA-242-5	***	<i>in H₂O</i>	4 x 125 mL	IAA-216-5	***
Neodymium (Nd)	125 mL	IAA-260	***	Tantalum (Ta)	125 mL	IAA-273	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-260-5	***	<i>in H₂O / trace HF</i>	4 x 125 mL	IAA-273-5	***
Nickel (Ni)	125 mL	IAA-228	***	Tellurium (Te)	125 mL	IAA-252	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-228-5	***	<i>in dilute HCl</i>	4 x 125 mL	IAA-252-5	***
Niobium (Nb)	125 mL	IAA-241	***	Terbium (Tb)	125 mL	IAA-265	***
<i>in H₂O / trace HF</i>	4 x 125 mL	IAA-241-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-265-5	***
Palladium (Pd)	125 mL	IAA-246	***	Thallium (Tl)	125 mL	IAA-281	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-246-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-281-5	***
Phosphorus (P)	125 mL	IAA-215	***	Thorium (Th)	125 mL	IAA-290	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-215-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-290-5	***
Platinum (Pt)	125 mL	IAA-278	***	Thulium (Tm)	125 mL	IAA-269	***
<i>in dilute HCl</i>	4 x 125 mL	IAA-278-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-269-5	***
Potassium (K)	125 mL	IAA-219	***	Tin (Sn)	125 mL	IAA-250	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-219-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-250-5	***
Praseodymium (Pr)	125 mL	IAA-259	***	Titanium (Ti)	125 mL	IAA-222	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-259-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-222-5	***
Rhenium (Re)	125 mL	IAA-275	***	Tungsten (W)	125 mL	IAA-274	***
<i>in H₂O</i>	4 x 125 mL	IAA-275-5	***	<i>in H₂O / trace NH₄OH</i>	4 x 125 mL	IAA-274-5	***
Rhodium (Rh)	125 mL	IAA-245	***	Uranium (U)	125 mL	IAA-292	***
<i>in dilute HCl</i>	4 x 125 mL	IAA-245-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-292-5	***
Rubidium (Rb)	125 mL	IAA-237	***	Vanadium (V)	125 mL	IAA-223	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-237-5	***	<i>in dilute HNO₃ / tr. HF</i>	4 x 125 mL	IAA-223-5	***
Ruthenium (Ru)	125 mL	IAA-244	***	Ytterbium (Yb)	125 mL	IAA-270	***
<i>in dilute HCl</i>	4 x 125 mL	IAA-244-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-270-5	***
Samarium (Sm)	125 mL	IAA-262	***	Yttrium (Y)	125 mL	IAA-239	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-262-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-239-5	***
Scandium (Sc)	125 mL	IAA-221	***	Zinc (Zn)	125 mL	IAA-230	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-221-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-230-5	***
Selenium (Se)	125 mL	IAA-234	***	Zirconium (Zr)	125 mL	IAA-240	***
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-234-5	***	<i>in dilute HNO₃</i>	4 x 125 mL	IAA-240-5	***
Silicon (Si)	125 mL	IAA-214	***				
<i>in dilute HNO₃</i>	4 x 125 mL	IAA-214-5	***				

EnviroConcentrates™ – A Unique Product for Atomic Absorption Spectroscopy

ULTRA quality AA standards, without the HAZMAT fees!

High concentration (10,000 µg/mL) ULTRAGrade® standards ideally suited for:

- ✓ Elimination of HAZMAT Fees: Require a standard to be shipped overnight but want to avoid the HAZMAT shipping fee? Because they are small quantities, EnviroConcentrates™ can be easily shipped without incurring HAZMAT fees.
- ✓ Calibration Curve Construction: At 10,000 µg/mL EnviroConcentrates™ can be easily diluted to produce any additional concentrations required.
- ✓ Custom Blends: EnviroConcentrates™ offer convenient and economical stock solutions for preparing in-house custom blends.

EnviroConcentrates™ for Atomic Absorption

10 mL @ 10,000 µg/mL

- ✓ No HAZMAT fees
- ✓ 10 mL of analyte solution @ 10,000 µg/mL
- ✓ Starting materials 99.99% pure, wherever possible
- ✓ NIST SRM traceable, wherever possible
- ✓ Yields 1 x 100 mL of standard @ 1000 µg/mL



Element	Volume	Catalog #	Price
Aluminum (Al) <i>in dilute HNO₃</i>	10 mL	IAA-013	***
Antimony (Sb) <i>in dilute HNO₃ / tr. tartaric</i>	10 mL	IAA-051	***
Arsenic (As) <i>in dilute HNO₃</i>	10 mL	IAA-033	***
Barium (Ba) <i>in dilute HNO₃</i>	10 mL	IAA-056	***
Beryllium (Be) <i>in dilute HNO₃</i>	10 mL	IAA-004	***
Bismuth (Bi) <i>in dilute HNO₃</i>	10 mL	IAA-083	***
Boron (B) <i>in H₂O / trace NH₄OH</i>	10 mL	IAA-005	***
Cadmium (Cd) <i>in dilute HNO₃</i>	10 mL	IAA-048	***
Calcium (Ca) <i>in dilute HNO₃</i>	10 mL	IAA-020	***

Element	Volume	Catalog #	Price
Cerium (Ce) <i>in dilute HNO₃</i>	10 mL	IAA-058	***
Cesium (Cs) <i>in dilute HNO₃</i>	10 mL	IAA-055	***
Chromium (Cr) <i>in dilute HNO₃</i>	10 mL	IAA-024	***
Cobalt (Co) <i>in dilute HNO₃</i>	10 mL	IAA-027	***
Copper (Cu) <i>in dilute HNO₃</i>	10 mL	IAA-029	***
Dysprosium (Dy) <i>in dilute HNO₃</i>	10 mL	IAA-066	***
Erbium (Er) <i>in dilute HNO₃</i>	10 mL	IAA-068	***
Europium (Eu) <i>in dilute HNO₃</i>	10 mL	IAA-063	***
Gadolinium (Gd) <i>in dilute HNO₃</i>	10 mL	IAA-064	***

Element	Volume	Catalog #	Price
Gallium (Ga) <i>in dilute HNO₃</i>	10 mL	IAA-031	***
Germanium (Ge) <i>in H₂O / trace HF</i>	10 mL	IAA-032	***
Holmium (Ho) <i>in dilute HNO₃</i>	10 mL	IAA-067	***
Indium (In) <i>in dilute HNO₃</i>	10 mL	IAA-049	***
Iron (Fe) <i>in dilute HNO₃</i>	10 mL	IAA-026	***
Lanthanum (La) <i>in dilute HNO₃</i>	10 mL	IAA-057	***
Lead (Pb) <i>in dilute HNO₃</i>	10 mL	IAA-082	***
Lithium (Li) <i>in dilute HNO₃</i>	10 mL	IAA-003	***
Magnesium (Mg) <i>in dilute HNO₃</i>	10 mL	IAA-012	***
Manganese (Mn) <i>in dilute HNO₃</i>	10 mL	IAA-025	***
Mercury (Hg) <i>in dilute HNO₃</i>	10 mL	IAA-080	***
Molybdenum (Mo) <i>in H₂O / trace NH₄OH</i>	10 mL	IAA-042	***
Neodymium (Nd) <i>in dilute HNO₃</i>	10 mL	IAA-060	***
Nickel (Ni) <i>in dilute HNO₃</i>	10 mL	IAA-028	***
Niobium (Nb) <i>in H₂O / trace HF</i>	10 mL	IAA-041	***
Phosphorus (P) <i>in dilute HNO₃</i>	10 mL	IAA-015	***
Potassium (K) <i>in dilute HNO₃</i>	10 mL	IAA-019	***
Praseodymium (Pr) <i>in dilute HNO₃</i>	10 mL	IAA-059	***
Samarium (Sm) <i>in dilute HNO₃</i>	10 mL	IAA-062	***
Selenium (Se) <i>in dilute HNO₃</i>	10 mL	IAA-034	***
Silicon (Si) <i>in H₂O</i>	10 mL	IAA-014	***

Element	Volume	Catalog #	Price
Silver (Ag) <i>in dilute HNO₃</i>	10 mL	IAA-047	***
Sodium (Na) <i>in dilute HNO₃</i>	10 mL	IAA-011	***
Strontium (Sr) <i>in dilute HNO₃</i>	10 mL	IAA-038	***
Sulfur (S) <i>in H₂O</i>	10 mL	IAA-016	***
Tantalum (Ta) <i>in H₂O / trace HF</i>	10 mL	IAA-073	***
Tellurium (Te) <i>in dilute HCl</i>	10 mL	IAA-052	***
Terbium (Tb) <i>in dilute HNO₃</i>	10 mL	IAA-065	***
Thallium (Tl) <i>in dilute HNO₃</i>	10 mL	IAA-081	***
Thorium (Th) <i>in dilute HNO₃</i>	10 mL	IAA-090	***
Tin (Sn) <i>in H₂O</i>	10 mL	IAA-050	***
Titanium (Ti) <i>in H₂O / trace HF</i>	10 mL	IAA-022	***
Tungsten (W) <i>in H₂O / trace NH₄OH</i>	10 mL	IAA-074	***
Uranium (U) <i>in dilute HNO₃</i>	10 mL	IAA-092	***
Vanadium (V) <i>in dilute HNO₃ / tr. HF</i>	10 mL	IAA-023	***
Ytterbium (Yb) <i>in dilute HNO₃</i>	10 mL	IAA-070	***
Yttrium (Y) <i>in dilute HNO₃</i>	10 mL	IAA-039	***
Zinc (Zn) <i>in dilute HNO₃</i>	10 mL	IAA-030	***
Zirconium (Zr) <i>in dilute HNO₃</i>	10 mL	IAA-040	***

Inorganic Standard Mixtures

ULTRA Scientific prepares hundreds of inorganic solution mixtures which meet or exceed all testing requirements for use in EPA methods, the Contract Laboratory Program, and Ion Chromatography methods. Each mixture is prepared under ULTRA's ISO 9001 quality system, and confirmed by ULTRA's ISO 17025 accredited laboratory.

Inorganic Mixtures are manufactured to ULTRAGrade® specifications, which include:

- ✓ Starting materials are 99.999% pure, wherever possible
- ✓ True value uncertainty of $\pm 0.2\%$ using weights traceable to NIST
- ✓ Identity and concentration confirmed by instrumental analysis (ICP, ICP-MS)
- ✓ NIST SRM traceable, wherever possible

Custom Standards

Do you require a standard not cataloged by ULTRA? We catalog over 5500 different standards, but if you can't find the specific standard you need, we will be happy to prepare it for you on a custom basis. Our custom organic and inorganic standards are a fast, economical way to address your unique applications. Log on to www.ultrasci.com and use our convenient quotation request web page. You will receive a quote within 24 hours.

Validation choices available:

Gravimetric Validation: All standards are manufactured under ULTRA's ISO 9001 registered quality system. Each analyte is guaranteed to be within the tolerance limits of $\pm 0.2\%$ nominal for inorganic analytes and $\pm 0.5\%$ nominal for organic analytes. A Certificate of Analysis accompanies each custom standard.

Quantitative Validation: The method employed is identical to that used for all ULTRA cataloged standards and involves extensive instrumental analysis. All quantitative customs are provided with a Datapak® and Certificate of Analysis.



Inorganic Quality Control Standards

ULTRAgrade®

- ✓ NIST traceable
- ✓ ULTRAgrade® certificate of analysis
- ✓ Starting materials are 99.999% pure, wherever possible

Quality Control Standard #1

7 Analytes

aluminum (Al)	100 µg/mL
barium (Ba)	100 µg/mL
boron (B)	100 µg/mL
potassium (K)	1000 µg/mL
silicon (Si)	50 µg/mL
silver (Ag)	100 µg/mL
sodium (Na)	100 µg/mL

in 5% HNO₃

IQC-007	125 mL	***
IQC-007-5	500 mL	***

Quality Control Standard #2

19 Analytes

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)	

@ 100 µg/mL in 5% HNO₃

IQC-019	125 mL	***
IQC-019-5	500 mL	***

Combined Quality Control Standard

26 Analytes

aluminum (Al)	100 µg/mL
antimony (Sb)	100 µg/mL
arsenic (As)	100 µg/mL
barium (Ba)	100 µg/mL
beryllium (Be)	100 µg/mL
boron (B)	100 µg/mL
cadmium (Cd)	100 µg/mL
calcium (Ca)	100 µg/mL
chromium (Cr)	100 µg/mL
cobalt (Co)	100 µg/mL
copper (Cu)	100 µg/mL
iron (Fe)	100 µg/mL
lead (Pb)	100 µg/mL
magnesium (Mg)	100 µg/mL
manganese (Mn)	100 µg/mL
molybdenum (Mo)	100 µg/mL
nickel (Ni)	100 µg/mL
potassium (K)	1000 µg/mL
selenium (Se)	100 µg/mL
silicon (Si)	50 µg/mL
silver (Ag)	100 µg/mL
sodium (Na)	100 µg/mL
thallium (Tl)	100 µg/mL
titanium (Ti)	100 µg/mL
vanadium (V)	100 µg/mL
zinc (Zn)	100 µg/mL

in 5% HNO₃

IQC-026	125 mL	***
IQC-026-5	500 mL	***

Quality Control Standards Kit

Kit - contains two bottles:

125 mL of each of the following standards

IQC-007 IQC-019

IQCK **Kit** *******

Ordering Is Easy

Online

www.ultrasci.com
ultra@ultrasci.com

Phone

800-338-1754
Monday – Friday
8:30 a.m. - 5:00 p.m. ET

Fax

401-295-2330

Mail

ULTRA Scientific
250 Smith Street
No. Kingstown, RI
02852



Metals and Trace Elements by ICP-AES

- ✓ NIST traceable
- ✓ ULTRAgrade® certificate of analysis
- ✓ Starting materials are 99.999% pure, wherever possible

Calibration Standards for EPA Method 200.7 – Revisions 4.4 and 3.3

Mixed Calibration Standard (CAL I)

10 Analytes

antimony (Sb)	50 µg/mL
arsenic (As)	100 µg/mL
barium (Ba)	10 µg/mL
boron (B)	20 µg/mL
cadmium (Cd)	20 µg/mL
calcium (Ca)	100 µg/mL
copper (Cu)	20 µg/mL
manganese (Mn)	20 µg/mL
selenium (Se)	50 µg/mL
silver (Ag)	5 µg/mL

in 2% HNO₃

ICM-231	125 mL	***
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Mixed Calibration Standard (CAL II)

5 Analytes

lithium (Li)	50 µg/mL
molybdenum (Mo)	100 µg/mL
potassium (K)	200 µg/mL
sodium (Na)	100 µg/mL
strontium (Sr)	10 µg/mL

in 2% HNO₃

ICM-232	125 mL	***
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Mixed Calibration Standard (CAL III)

3 Analytes

cobalt (Co)	20 µg/mL
phosphorus (P)	100 µg/mL
vanadium (V)	20 µg/mL

in 2% HNO₃

ICM-233	125 mL	***
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Mixed Calibration Standard (CAL IV)

5 Analytes

aluminum (Al)	100 µg/mL
chromium (Cr)	50 µg/mL
silicon (Si)	100 µg/mL
tin (Sn)	40 µg/mL
zinc (Zn)	50 µg/mL

in 2% HNO₃

ICM-234	125 mL	***
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Mercury Standard (CAL IVa)

mercury (Hg)

@ 20 µg/mL in 2% HNO₃

ICM-642	125 mL	***
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Mixed Calibration Standard (CAL V)

6 Analytes

beryllium (Be)	10 µg/mL
iron (Fe)	100 µg/mL
lead (Pb)	100 µg/mL
magnesium (Mg)	100 µg/mL
nickel (Ni)	20 µg/mL
thallium (Tl)	50 µg/mL

in 2% HNO₃

ICM-235	125 mL	***
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EPA Method 200.7 Calibration Kit

Kit - contains six bottles:

125 mL of each of the following standards

ICM-231	ICM-232	ICM-233
ICM-234	ICM-235	ICM-642

ICK-230A	Kit	***
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Standards for EPA Method 200.7 – Revisions 4.4 and 3.3

Laboratory Performance Check Solution (LPC)

30 Analytes

aluminum (Al)	20 µg/mL
antimony (Sb)	20 µg/mL
arsenic (As)	20 µg/mL
barium (Ba)	20 µg/mL
beryllium (Be)	20 µg/mL
boron (B)	20 µg/mL
cadmium (Cd)	20 µg/mL
calcium (Ca)	20 µg/mL
chromium (Cr)	20 µg/mL
cobalt (Co)	20 µg/mL
copper (Cu)	20 µg/mL
iron (Fe)	20 µg/mL
lead (Pb)	20 µg/mL
lithium (Li)	20 µg/mL
magnesium (Mg)	20 µg/mL
manganese (Mn)	20 µg/mL
mercury (Hg)	20 µg/mL
molybdenum (Mo)	20 µg/mL
nickel (Ni)	20 µg/mL
phosphorus (P)	100 µg/mL
potassium (K)	100 µg/mL
selenium (Se)	20 µg/mL
silicon (Si)	100 µg/mL
silver (Ag)	5 µg/mL
sodium (Na)	20 µg/mL
strontium (Sr)	20 µg/mL
thallium (Tl)	20 µg/mL
tin (Sn)	20 µg/mL
vanadium (V)	20 µg/mL
zinc (Zn)	20 µg/mL

in 2% HNO₃

ICM-240 **125 mL** *******

Laboratory Fortifying Stock Solution

26 Analytes

aluminum (Al)	25 µg/mL
antimony (Sb)	25 µg/mL
arsenic (As)	25 µg/mL
barium (Ba)	25 µg/mL
beryllium (Be)	5 µg/mL
boron (B)	25 µg/mL
cadmium (Cd)	10 µg/mL
chromium (Cr)	25 µg/mL
cobalt (Co)	10 µg/mL
copper (Cu)	25 µg/mL
iron (Fe)	25 µg/mL
lead (Pb)	25 µg/mL
lithium (Li)	25 µg/mL
manganese (Mn)	25 µg/mL
mercury (Hg)	5 µg/mL
molybdenum (Mo)	10 µg/mL
nickel (Ni)	25 µg/mL
phosphorus (P)	50 µg/mL
selenium (Se)	25 µg/mL
silicon (Si)	25 µg/mL
silver (Ag)	2.5 µg/mL
strontium (Sr)	25 µg/mL
thallium (Tl)	25 µg/mL
tin (Sn)	10 µg/mL
vanadium (V)	10 µg/mL
zinc (Zn)	25 µg/mL

in 2% HNO₃

ICM-245 **125 mL** *******

Plasma Solution

4 Analytes

arsenic (As)
lead (Pb)
selenium (Se)
thallium (Tl)

@ 10 µg/mL in 2% HNO₃

ICM-237 **125 mL** *******

Tuning Solution

2 Analytes

copper (Cu)
lead (Pb)

@ 10 µg/mL in 2% HNO₃

ICM-238 **125 mL** *******

Spectral Interference Check (SIC I)

molybdenum (Mo)

@ 50 µg/mL in 2% HNO₃

ICM-241 **125 mL** *******

Spectral Interference Check (SIC II)

5 Analytes

chromium (Cr)	20 µg/mL
cobalt (Co)	10 µg/mL
copper (Cu)	40 µg/mL
manganese (Mn)	20 µg/mL
vanadium (V)	20 µg/mL

in 2% HNO₃

ICM-242 **125 mL** *******

Spectral Interference Check (SIC III)

3 Analytes

aluminum (Al) 30 µg/mL
iron (Fe) 150 µg/mL
nickel (Ni) 20 µg/mL

in 2% HNO₃

ICM-243 **125 mL** *******

continued on next page

Additional Calibration Standards for EPA Method 200.7

EPA 200.7 Calibration Standard #1

5 Analytes

arsenic (As)	1000 µg/mL
cadmium (Cd)	500 µg/mL
lead (Pb)	1000 µg/mL
selenium (Se)	500 µg/mL
thallium (Tl)	1000 µg/mL

in 5% HNO₃

ICM-202	125 mL	***
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EPA 200.7 Calibration Standard #2

7 Analytes

barium (Ba)	100 µg/mL
beryllium (Be)	100 µg/mL
cobalt (Co)	200 µg/mL
copper (Cu)	100 µg/mL
iron (Fe)	1000 µg/mL
manganese (Mn)	100 µg/mL
vanadium (V)	100 µg/mL

in 2% HNO₃

ICM-203	125 mL	***
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EPA 200.7 Calibration Standard #3

3 Analytes

boron (B)	100 µg/mL
molybdenum (Mo)	1000 µg/mL
silicon (Si)	1000 µg/mL

in H₂O

ICM-204	125 mL	***
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EPA 200.7 Calibration Standard #4

9 Analytes

aluminum (Al)	1000 µg/mL
calcium (Ca)	1000 µg/mL
chromium (Cr)	500 µg/mL
magnesium (Mg)	1000 µg/mL
nickel (Ni)	500 µg/mL
potassium (K)	1000 µg/mL
silver (Ag)	500 µg/mL
sodium (Na)	1000 µg/mL
zinc (Zn)	500 µg/mL

in 5% HNO₃

ICM-205	125 mL	***
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Antimony Standard

antimony (Sb)

@ 1000 µg/mL in 2% HNO₃ / tr. tartaric acid

ICP-051	125 mL	***
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EPA Method 200.7 Calibration Standards Kit

Kit - contains five bottles:

125 mL of each of the following standards

ICM-202	ICM-203	ICM-204
ICM-205	ICP-051	

ICK-200A	Kit	***
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Interference Check Standards for EPA Method 200.7

Interference Check Standard #1

4 Analytes

boron (B)	500 µg/mL
molybdenum (Mo)	300 µg/mL
silicon (Si)	230 µg/mL
titanium (Ti)	1000 µg/mL

in H₂O

ICM-221	50 mL	***
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Interference Check Standard #4

5 Analytes

aluminum (Al)	3000 µg/mL
calcium (Ca)	15,000 µg/mL
iron (Fe)	12,500 µg/mL
magnesium (Mg)	7500 µg/mL
sodium (Na)	2500 µg/mL

in 2% HNO₃

ICM-224	125 mL	***
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Interference Check Standard #3

16 Analytes

arsenic (As)	1000 µg/mL
barium (Ba)	300 µg/mL
beryllium (Be)	100 µg/mL
cadmium (Cd)	300 µg/mL
chromium (Cr)	300 µg/mL
cobalt (Co)	300 µg/mL
copper (Cu)	300 µg/mL
lead (Pb)	1000 µg/mL
manganese (Mn)	200 µg/mL
nickel (Ni)	300 µg/mL
potassium (K)	20,000 µg/mL
selenium (Se)	500 µg/mL
silver (Ag)	300 µg/mL
thallium (Tl)	1000 µg/mL
vanadium (V)	300 µg/mL
zinc (Zn)	300 µg/mL

in 5% HNO₃

ICM-223	50 mL	***
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Antimony Standard (ICS #2)

antimony (Sb)

@ 1000 µg/mL in 2% HNO₃ / tr. tartaric acid

ICP-051	125 mL	***
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EPA Method 200.7 Interference Check Kit

Kit - contains four bottles:

50 mL of each of the following standards

ICM-221	ICM-223
plus	

125 mL of each of the following standards

ICP-051	ICM-224
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ICK-220A	Kit	***
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Spiking Standards for EPA Method 200.7

Spiking Addition Standard

12 Analytes

aluminum (Al)	2000 µg/mL
barium (Ba)	2000 µg/mL
beryllium (Be)	50 µg/mL
chromium (Cr)	200 µg/mL
cobalt (Co)	500 µg/mL
copper (Cu)	250 µg/mL
iron (Fe)	1000 µg/mL
manganese (Mn)	500 µg/mL
nickel (Ni)	500 µg/mL
silver (Ag)	50 µg/mL
vanadium (V)	500 µg/mL
zinc (Zn)	500 µg/mL

in 5% HNO₃

ICM-213	50 mL	***
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Antimony Standard

antimony (Sb)

@ 1000 µg/mL in 2% HNO₃ / tr. tartaric acid

ICP-051	125 mL	***
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Spiking Addition Standard

4 Analytes

calcium (Ca)	1000 µg/mL
magnesium (Mg)	2000 µg/mL
potassium (K)	10,000 µg/mL
sodium (Na)	3000 µg/mL

in 5% HNO₃

ICM-212	50 mL	***
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Spiking Addition Standard

5 Analytes

arsenic (As)	800 µg/mL
cadmium (Cd)	100 µg/mL
lead (Pb)	1000 µg/mL
selenium (Se)	1000 µg/mL
thallium (Tl)	1000 µg/mL

in 5% HNO₃

ICM-215	50 mL	***
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Spiking Addition Standard

3 Analytes

boron (B)	500 µg/mL
molybdenum (Mo)	500 µg/mL
silicon (Si)	2000 µg/mL

in 5% HNO₃ with trace HF

ICM-211	50 mL	***
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EPA Method 200.7 Spiking Addition Kit

Kit - contains five bottles:

50 mL of each of the following standards

ICM-211	ICM-212	ICM-213
ICM-215	plus	

125 mL of the following standard

ICP-051

ICK-210A	Kit	***
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Trace Elements by ICP-MS

- ✓ NIST traceable
- ✓ ULTRAgrade® certificate of analysis
- ✓ Starting materials are 99.999% pure, wherever possible

Standard Solution A

18 Analytes

aluminum (Al)	10 µg/mL
antimony (Sb)	10 µg/mL
arsenic (As)	10 µg/mL
beryllium (Be)	10 µg/mL
cadmium (Cd)	10 µg/mL
chromium (Cr)	10 µg/mL
cobalt (Co)	10 µg/mL
copper (Cu)	10 µg/mL
lead (Pb)	10 µg/mL
manganese (Mn)	10 µg/mL
molybdenum (Mo)	10 µg/mL
nickel (Ni)	10 µg/mL
selenium (Se)	50 µg/mL
thallium (Tl)	10 µg/mL
thorium (Th)	10 µg/mL
uranium (U)	10 µg/mL
vanadium (V)	10 µg/mL
zinc (Zn)	10 µg/mL

in 2% HNO₃ / trace tartaric acid

ICM-801	125 mL	***
ICM-801-5	500 mL	***

Standard Solution B

2 Analytes

barium (Ba)
silver (Ag)@ 10 µg/mL in 2% HNO₃

ICM-802	125 mL	***
ICM-802-5	500 mL	***

Tuning Standard

5 Analytes

beryllium (Be)
magnesium (Mg)
cobalt (Co)
indium (In)
lead (Pb)@ 100 µg/mL in 2% HNO₃

ICM-820	125 mL	***
ICM-820-5	500 mL	***

Mercury Standard

mercury (Hg)

@ 10 µg/mL in 5% HNO₃

IMS-105	125 mL	***
IMS-105-5	500 mL	***

Gold Stock Std. for Hg Analysis

gold (Au)

@ 1000 µg/mL in dilute HNO₃

ICP-079	125 mL	***
ICP-079-5	500 mL	***

Internal Standard Mix

5 Analytes

scandium (Sc)
yttrium (Y)
indium (In)
terbium (Tb)
bismuth (Bi)@ 100 µg/mL in 2% HNO₃

ICM-810	125 mL	***
ICM-810-5	500 mL	***

Individual ICP-MS Internal Standard Solutions for Method 200.8@ 100 µg/mL in 2% HNO₃

Standard	Catalog #	Volume	Price
bismuth (Bi)	IMS-111	125 mL	***
	IMS-111-5	500 mL	***
indium (In)	IMS-112	125 mL	***
	IMS-112-5	500 mL	***
scandium (Sc)	IMS-113	125 mL	***
	IMS-113-5	500 mL	***
terbium (Tb)	IMS-114	125 mL	***
	IMS-114-5	500 mL	***
yttrium (Y)	IMS-115	125 mL	***
	IMS-115-5	500 mL	***

Additional Standards for ICP-MS

ULTRAgrade®

- ✓ NIST traceable
- ✓ ULTRAgrade® certificate of analysis
- ✓ Starting materials are 99.999% pure, wherever possible

ICP-MS Calibration Standard

17 Analytes

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)	

@ 10 µg/mL in 5% HNO₃

IMS-101 **125 mL** *******

ICP-MS Calibration Standard

29 Analytes

aluminum (Al)	lithium (Li)
arsenic (As)	magnesium (Mg)
barium (Ba)	manganese (Mn)
beryllium (Be)	nickel (Ni)
bismuth (Bi)	potassium (K)
cadmium (Cd)	rubidium (Rb)
calcium (Ca)	selenium (Se)
cesium (Cs)	silver (Ag)
chromium (Cr)	sodium (Na)
cobalt (Co)	strontium (Sr)
copper (Cu)	thallium (Tl)
gallium (Ga)	uranium (U)
indium (In)	vanadium (V)
iron (Fe)	zinc (Zn)
lead (Pb)	

@ 10 µg/mL in 5% HNO₃

IMS-102 **125 mL** *******

ICP-MS Calibration Standard

12 Analytes

boron (B)
germanium (Ge)
molybdenum (Mo)
niobium (Nb)
phosphorus (P)
rhenium (Re)
silicon (Si)
sulfur (S)
tantalum (Ta)
titanium (Ti)
tungsten (W)
zirconium (Zr)

@ 10 µg/mL in H₂O

IMS-104 **125 mL** *******

ICP-MS Calibration Standard

10 Analytes

antimony (Sb)	platinum (Pt)
gold (Au)	rhodium (Rh)
hafnium (Hf)	ruthenium (Ru)
iridium (Ir)	tellurium (Te)
palladium (Pd)	tin (Sn)

@ 10 µg/mL in 10% HCl

IMS-103 **125 mL** *******

Mercury ICP-MS Standard

mercury (Hg)

@ 10 µg/mL in 5% HNO₃

IMS-105 **125 mL** *******

IMS-105-5 **500 mL** *******

ICP-MS Calibration Kit

Kit - contains five bottles:

125 mL of each of the following standards

IMS-101	IMS-102	IMS-103
IMS-104	IMS-105	

IMK-109 **Kit** *******

ICP-MS Tuning Solution

5 Analytes

beryllium (Be)
cobalt (Co)
indium (In)
lead (Pb)
magnesium (Mg)

@ 10 µg/mL in 2% HNO₃

IMS-110 **125 mL** *******

IMS-110-5 **500 mL** *******

ICP-MS Verification Standard

9 Analytes

beryllium (Be)	lead (Pb)
bismuth (Bi)	magnesium (Mg)
cerium (Ce)	nickel (Ni)
cobalt (Co)	uranium (U)
indium (In)	

@ 10 µg/mL in 2% HNO₃

IMS-100 **125 mL** *******

Inorganics by ICP - AES

- ✓ NIST traceable
- ✓ ULTRAgrade® certificate of analysis
- ✓ Starting materials are 99.999% pure, wherever possible

Calibration Standards for EPA Method 6010C

Mixed Standard Solution I

6 Analytes

beryllium (Be)	50 µg/mL
cadmium (Cd)	150 µg/mL
lead (Pb)	500 µg/mL
manganese (Mn)	100 µg/mL
selenium (Se)	200 µg/mL
zinc (Zn)	150 µg/mL

in 2% HNO₃

ICM-601	125 mL	***
ICM-601-5	500 mL	***

Mixed Standard Solution II

5 Analytes

barium (Ba)	100 µg/mL
cobalt (Co)	100 µg/mL
copper (Cu)	100 µg/mL
iron (Fe)	10,000 µg/mL
vanadium (V)	100 µg/mL

in 2% HNO₃

ICM-602	125 mL	***
ICM-602-5	500 mL	***

Mixed Standard Solution III

2 Analytes

arsenic (As)	500 µg/mL
molybdenum (Mo)	100 µg/mL

in 2% HNO₃

ICM-603	125 mL	***
ICM-603-5	500 mL	***

Mixed Standard Solution IV

8 Analytes

aluminum (Al)	200 µg/mL
calcium (Ca)	1000 µg/mL
chromium (Cr)	20 µg/mL
lithium (Li)	100 µg/mL
nickel (Ni)	20 µg/mL
potassium (K)	400 µg/mL
sodium (Na)	200 µg/mL
strontium (Sr)	10 µg/mL

in 2% HNO₃

ICM-604	125 mL	***
ICM-604-5	500 mL	***

Mixed Standard Solution V

4 Analytes

antimony (Sb)	200 µg/mL
magnesium (Mg)	1000 µg/mL
silver (Ag)	50 µg/mL
thallium (Tl)	200 µg/mL

in 2% HNO₃

ICM-605	125 mL	***
ICM-605-5	500 mL	***

Mixed Standard Solution VI

phosphorus (P)

@ 1000 µg/mL in 2% HNO₃

ICP-015	125 mL	***
ICP-015-5	500 mL	***

Mixed Standard Solution IIa

5 Analytes

barium (Ba)	100 µg/mL
cobalt (Co)	100 µg/mL
copper (Cu)	100 µg/mL
iron (Fe)	1000 µg/mL
vanadium (V)	100 µg/mL

in 2% HNO₃

ICM-607	125 mL	***
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EPA Method 6010C Mixed Standard Solution Kit

Kit - contains six bottles:

125 mL of each of the following standards

ICM-601	ICM-602	ICM-603
ICM-604	ICM-605	ICP-015

ICK-600A	Kit	***
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Interference Check Standards for EPA Method 6010C

Interference Check Standard

5 Analytes

lithium (Li)	300 µg/mL
molybdenum (Mo)	300 µg/mL
phosphorus (P)	1000 µg/mL
strontium (Sr)	200 µg/mL
titanium (Ti)	1000 µg/mL

in 2% HNO₃

ICM-611	125 mL	***
ICM-611-5	500 mL	***

Interference Check Standard

antimony (Sb)

@ 1000 µg/mL in 2% HNO₃/ tr. tartaric acid

ICP-051	125 mL	***
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Interference Check Standard

16 Analytes

arsenic (As)	1000 µg/mL
barium (Ba)	300 µg/mL
beryllium (Be)	100 µg/mL
cadmium (Cd)	300 µg/mL
chromium (Cr)	300 µg/mL
cobalt (Co)	300 µg/mL
copper (Cu)	300 µg/mL
lead (Pb)	1000 µg/mL
manganese (Mn)	200 µg/mL
nickel (Ni)	300 µg/mL
potassium (K)	20,000 µg/mL
selenium (Se)	500 µg/mL
silver (Ag)	300 µg/mL
thallium (Tl)	1000 µg/mL
vanadium (V)	300 µg/mL
zinc (Zn)	300 µg/mL

in 5% HNO₃

ICM-223	50 mL	***
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Interference Check Standard

5 Analytes

aluminum (Al)	3000 µg/mL
calcium (Ca)	15,000 µg/mL
iron (Fe)	12,500 µg/mL
magnesium (Mg)	7500 µg/mL
sodium (Na)	2500 µg/mL

in 2% HNO₃

ICM-224	125 mL	***
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EPA Method 6010C Interference Check Kit

Kit - contains four bottles:

50 mL of the following standard

ICM-223

plus

125 mL of each of the following standards

ICM-611 ICP-051 ICM-224

ICK-610A Kit ***

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Inorganics Analysis

- ✓ NIST traceable
- ✓ ULTRAgrade® certificate of analysis
- ✓ Starting materials are 99.999% pure, wherever possible

Calibration Standards for the CLP

CLP ICP Calibration Standard

16 Analytes

aluminum (Al)	2000 µg/mL
barium (Ba)	2000 µg/mL
beryllium (Be)	50 µg/mL
calcium (Ca)	5000 µg/mL
chromium (Cr)	200 µg/mL
cobalt (Co)	500 µg/mL
copper (Cu)	250 µg/mL
iron (Fe)	1000 µg/mL
magnesium (Mg)	5000 µg/mL
manganese (Mn)	500 µg/mL
nickel (Ni)	500 µg/mL
potassium (K)	5000 µg/mL
silver (Ag)	250 µg/mL
sodium (Na)	5000 µg/mL
vanadium (V)	500 µg/mL
zinc (Zn)	500 µg/mL

in 5% HNO₃

ICM-411 125 mL ***

CLP ICP Calibration Standard

antimony (Sb)

@ 1000 µg/mL in 2% HNO₃ / tr. tartaric acid

ICP-051 125 mL ***

CLP ICP Calibration Standard

5 Analytes

arsenic (As)	1000 µg/mL
cadmium (Cd)	500 µg/mL
lead (Pb)	1000 µg/mL
selenium (Se)	1000 µg/mL
thallium (Tl)	1000 µg/mL

in 5% HNO₃

ICM-413 125 mL ***

CLP ICP Calibration Kit

Kit - contains three bottles:

125 mL of each of the following standards

ICM-411 ICM-413 ICP-051

ICK-410A Kit ***

Spiking Standards for the CLP

CLP ICP Spike Standard

12 Analytes

aluminum (Al)	2000 µg/mL
barium (Ba)	2000 µg/mL
beryllium (Be)	50 µg/mL
chromium (Cr)	200 µg/mL
cobalt (Co)	500 µg/mL
copper (Cu)	250 µg/mL
iron (Fe)	1000 µg/mL
manganese (Mn)	500 µg/mL
nickel (Ni)	500 µg/mL
silver (Ag)	50 µg/mL
vanadium (V)	500 µg/mL
zinc (Zn)	500 µg/mL

in 5% HNO₃

ICM-451 125 mL ***

CLP ICP Spike Standard

antimony (Sb)

@ 500 µg/mL in dilute HNO₃

ICM-452 125 mL ***

CLP ICP Spike Kit

Kit - contains three bottles:

125 mL of each of the following standards

ICM-451 ICM-452 ICM-453

ICK-450 Kit ***

CLP ICP Spike Standard

5 Analytes

arsenic (As)	2000 µg/mL
cadmium (Cd)	50 µg/mL
lead (Pb)	500 µg/mL
selenium (Se)	2000 µg/mL
thallium (Tl)	2000 µg/mL

in 5% HNO₃

ICM-453 125 mL ***

Calibration Verification Standards for the CLP

CLP ICP Verification Standard *

16 Analytes

aluminum (Al)	1000 µg/mL
barium (Ba)	1000 µg/mL
beryllium (Be)	25 µg/mL
calcium (Ca)	2500 µg/mL
chromium (Cr)	100 µg/mL
cobalt (Co)	250 µg/mL
copper (Cu)	125 µg/mL
iron (Fe)	500 µg/mL
magnesium (Mg)	2500 µg/mL
manganese (Mn)	250 µg/mL
nickel (Ni)	250 µg/mL
potassium (K)	2500 µg/mL
silver (Ag)	125 µg/mL
sodium (Na)	2500 µg/mL
vanadium (V)	250 µg/mL
zinc (Zn)	250 µg/mL

in 5% HNO₃

ICM-431	125 mL	***
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CLP ICP Verification Standard *

antimony (Sb)

@ 500 µg/mL in dilute HNO₃

ICM-432	125 mL	***
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CLP ICP Verification Standard *

5 Analytes

arsenic (As)	500 µg/mL
cadmium (Cd)	250 µg/mL
lead (Pb)	500 µg/mL
selenium (Se)	500 µg/mL
thallium (Tl)	500 µg/mL

in 5% HNO₃

ICM-433	125 mL	***
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CLP ICP Verification Kit *

Kit - contains three bottles:

125 mL of each of the following standards

ICM-431	ICM-432	ICM-433
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ICK-430	Kit	***
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*** Meets CLP QA second-source requirements.**

continued on next page

Interference Check Standards for the CLP

CLP ICP Interference Check Standard

12 Analytes

barium (Ba)	50 µg/mL
beryllium (Be)	50 µg/mL
cadmium (Cd)	100 µg/mL
chromium (Cr)	50 µg/mL
cobalt (Co)	50 µg/mL
copper (Cu)	50 µg/mL
lead (Pb)	100 µg/mL
manganese (Mn)	50 µg/mL
nickel (Ni)	100 µg/mL
silver (Ag)	100 µg/mL
vanadium (V)	50 µg/mL
zinc (Zn)	100 µg/mL

in 5% HNO₃

ICM-442	50 mL	***
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CLP ICP Interference Check Standard

4 Analytes

aluminum (Al)	5000 µg/mL
calcium (Ca)	5000 µg/mL
iron (Fe)	2000 µg/mL
magnesium (Mg)	5000 µg/mL

in 5% HNO₃

ICM-441	500 mL	***
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CLP ICP Interference Check Kit

Kit - contains two bottles:

500 mL of the following standard

ICM-441

plus

50 mL of the following standard

ICM-442

ICK-440	Kit	***
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CLP ILM-4.0 Interference Check Analytes Standard

16 Analytes

antimony (Sb)	60 µg/mL
arsenic (As)	10 µg/mL
barium (Ba)	50 µg/mL
beryllium (Be)	50 µg/mL
cadmium (Cd)	100 µg/mL
chromium (Cr)	50 µg/mL
cobalt (Co)	50 µg/mL
copper (Cu)	50 µg/mL
lead (Pb)	5 µg/mL
manganese (Mn)	50 µg/mL
nickel (Ni)	100 µg/mL
selenium (Se)	5 µg/mL
silver (Ag)	20 µg/mL
thallium (Tl)	10 µg/mL
vanadium (V)	50 µg/mL
zinc (Zn)	100 µg/mL

in 2% HNO₃

ICM-443	125 mL	***
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ICP/AA Detection Limit Standards for the CLP

CLP ICP/AA Detection Limits Standard

9 Analytes

beryllium (Be)	100 µg/mL
chromium (Cr)	200 µg/mL
cobalt (Co)	1000 µg/mL
copper (Cu)	500 µg/mL
manganese (Mn)	300 µg/mL
nickel (Ni)	800 µg/mL
silver (Ag)	200 µg/mL
vanadium (V)	1000 µg/mL
zinc (Zn)	400 µg/mL

in 5% HNO₃

ICM-421 125 mL ***

CLP ICP/AA Detection Limits Standard

5 Analytes

arsenic (As)	100 µg/mL
cadmium (Cd)	50 µg/mL
lead (Pb)	30 µg/mL
selenium (Se)	50 µg/mL
thallium (Tl)	100 µg/mL

in 5% HNO₃

ICM-423 125 mL ***

CLP ICP/AA Detection Limits Standard

antimony (Sb)

@ 600 µg/mL in dilute HNO₃

ICM-422 125 mL ***

CLP ICP/AA Detection Limits Kit

Kit - contains three bottles:

125 mL of each of the following standards

ICM-421 ICM-422 ICM-423

ICK-420 Kit ***

continued

Complete Standards Kits for the CLP

Complete CLP Standards Kit

Kit - contains nineteen bottles:

125 mL of each of the following standards

ICM-411	ICP-051	ICM-413
ICM-421	ICM-422	ICM-423
ICM-431	ICM-432	ICM-433
ICM-451	ICM-452	ICM-453
ICM-303		

plus

500 mL of the following standard

ICM-441

plus

50 mL of each of the following standards

ICM-442	ICM-461	ICM-462
ICM-463	ICM-464	

ICPK-4A Kit ***

CLP ICP Standards Kit

Kit - contains fourteen bottles:

125 mL of each of the following standards

ICM-411	ICP-051	ICM-413
ICM-421	ICM-422	ICM-423
ICM-431	ICM-432	ICM-433
ICM-451	ICM-452	ICM-453

plus

500 mL of the following standard

ICM-441

plus

50 mL of the following standard

ICM-442

ICPK-5A Kit ***

Graphite Furnace AA Standards for the CLP

CLP GFAA Standard

6 Analytes

antimony (Sb)	100 µg/mL
arsenic (As)	50 µg/mL
cadmium (Cd)	10 µg/mL
lead (Pb)	50 µg/mL
selenium (Se)	100 µg/mL
thallium (Tl)	50 µg/mL

in 5% HNO₃

ICM-461 50 mL ***

CLP GFAA Standard (Calibration Verification)

6 Analytes

antimony (Sb)	50 µg/mL
arsenic (As)	25 µg/mL
cadmium (Cd)	5 µg/mL
lead (Pb)	25 µg/mL
selenium (Se)	50 µg/mL
thallium (Tl)	25 µg/mL

in 5% HNO₃

ICM-462 50 mL ***

CLP GFAA Standard (P Spike)

6 Analytes

antimony (Sb)	100 µg/mL
arsenic (As)	40 µg/mL
cadmium (Cd)	5 µg/mL
lead (Pb)	20 µg/mL
selenium (Se)	10 µg/mL
thallium (Tl)	50 µg/mL

in 5% HNO₃

ICM-463 50 mL ***

CLP GFAA Standard

6 Analytes

antimony (Sb)	120 µg/mL
arsenic (As)	20 µg/mL
cadmium (Cd)	10 µg/mL
lead (Pb)	20 µg/mL
selenium (Se)	10 µg/mL
thallium (Tl)	20 µg/mL

in 5% HNO₃

ICM-464 50 mL ***

CLP GFAA Standard

mercury (Hg)

@ 100 µg/mL in 2% HNO₃

ICM-303 125 mL ***

CLP GFAA Interference Check Kit

Kit - contains five bottles:

50 mL of each of the following standards

ICM-461 ICM-462

ICM-463 ICM-464

plus

125 mL of the following standard

ICM-303

ICK-460A Kit ***

Matrix Modifiers for Graphite Furnace AA

Starting Material	Concentration and Matrix	Volume	Catalog #	Price
Palladium from Palladium Nitrate	2000 µg/mL in HNO ₃	125 mL	IMM-001	***
Palladium from Palladium Nitrate	5000 µg/mL in HNO ₃	50 mL	IMM-002	***
Magnesium Nitrate	10,000 µg/mL in HNO ₃	125 mL	IMM-003	***
Phosphate from Ammonium Phosphate	40,000 µg/mL in HNO ₃	50 mL	IMM-004	***
Ammonium Nitrate	10,000 µg/mL in HNO ₃	50 mL	IMM-005	***
Nickel from Nickel Nitrate	4000 µg/mL in HNO ₃	50 mL	IMM-007	***

SDWA & TCLP

ULTRAgrade®

Inorganics Analysis

- ✓ NIST traceable
- ✓ ULTRAgrade® certificate of analysis
- ✓ Starting materials are 99.999% pure, wherever possible

Safe Drinking Water Act (SDWA) Standards

Primary Safe Drinking Water Act Standard #1

6 Analytes

arsenic (As)	500 µg/mL
cadmium (Cd)	100 µg/mL
chromium (Cr)	500 µg/mL
lead (Pb)	500 µg/mL
selenium (Se)	100 µg/mL
silver (Ag)	500 µg/mL

in 10% HNO₃

ICM-301	125 mL	***
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Primary Safe Drinking Water Act Standard #2

barium (Ba)

@ 10,000 µg/mL in 2% HNO₃

ICP-156	125 mL	***
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Primary Safe Drinking Water Act Standard #3

mercury (Hg)

@ 100 µg/mL in 5% HNO₃

ICM-303	125 mL	***
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Primary Safe Drinking Water Act Kit

Kit - contains three bottles:

125 mL of each of the following standards

ICM-301	ICP-156	ICM-303
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ICK-300A	Kit	***
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Secondary Safe Drinking Water Act Standard

4 Analytes

copper (Cu)	100 µg/mL
iron (Fe)	30 µg/mL
manganese (Mn)	5 µg/mL
zinc (Zn)	500 µg/mL

in 2% HNO₃

ICM-304	125 mL	***
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Toxicity Characteristic Leaching Procedure (TCLP) Standards

TCLP Analytes Mixture

7 Analytes

arsenic (As)	25 µg/mL
barium (Ba)	500 µg/mL
cadmium (Cd)	5 µg/mL
chromium (Cr)	25 µg/mL
lead (Pb)	25 µg/mL
selenium (Se)	5 µg/mL
silver (Ag)	25 µg/mL

in 5% HNO₃

ICM-641	125 mL	***
ICM-641-5	500 mL	***

TCLP Mercury Standard

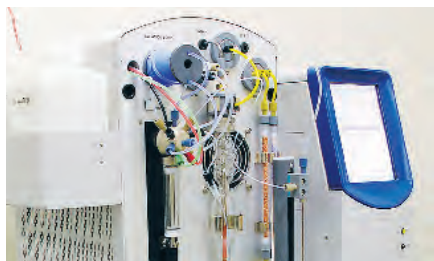
mercury (Hg)

@ 20 µg/mL in 2% HNO₃

ICM-642	125 mL	***
ICM-642-5	500 mL	***

Total Organic Carbon (TOC) & Total Inorganic Carbon (TIC)

ULTRAGrade®



- ✓ NIST traceable
- ✓ ULTRAGrade® certificate of analysis
- ✓ Ultra low TOC (< 50 ppb) water

Total Inorganic Carbon (TIC)

total inorganic carbon (TIC)

@ 1000 mg/L in H₂O

ICC-033	125 mL	***
ICC-033-5	500 mL	***
ICC-033-L	1 L	***

TOC Standard (Preserved)

total organic carbon 50 mg/L

in H₂O tr. H₂SO₄

IOC-001	125 mL	***
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ULTRA Low TOC Water

water (less than 50 ppb TOC)

IOC-100	250 mL	***
IOC-100-5	500 mL	***
IOC-100-L	1 L	***

Total Organic Carbon (TOC) Standards

Concentration	Volume	Catalog #	Price
TOC @ 0.5 mg/L <i>benzoquinone in H₂O</i>	250 mL	IOC-111	***
	500 mL	IOC-111-5	***
TOC @ 1 mg/L <i>KHP in H₂O</i>	250 mL	IOC-107	***
	500 mL	IOC-107-5	***
TOC @ 10 mg/L <i>KHP in H₂O</i>	250 mL	IOC-108	***
	500 mL	IOC-108-5	***
TOC @ 25 mg/L <i>KHP in H₂O</i>	250 mL	IOC-101	***
	500 mL	IOC-101-5	***
TOC @ 50 mg/L <i>KHP in H₂O</i>	250 mL	IOC-102	***
	500 mL	IOC-102-5	***
TOC @ 100 mg/L <i>KHP in H₂O</i>	250 mL	IOC-103	***
	500 mL	IOC-103-5	***
TOC @ 250 mg/L <i>KHP in H₂O</i>	250 mL	IOC-104	***
	500 mL	IOC-104-5	***
TOC @ 500 mg/L <i>KHP in H₂O</i>	250 mL	IOC-105	***
	500 mL	IOC-105-5	***
TOC @ 1000 mg/L <i>KHP in H₂O</i>	250 mL	IOC-106	***
	500 mL	IOC-106-5	***

Standards for Cyanide Testing

Free Cyanide Standard

cyanide (from KCN)	1000 mg/L	
<i>in dilute NaOH</i>		
ICC-008	125 mL	***

Complex Cyanide Standard

cyanide (from K ₃ Fe(CN) ₆)	1000 mg/L	
<i>in H₂O</i>		
ICC-009	125 mL	***

Ion Chromatography

ULTRAgrade®

- ✓ NIST traceable
- ✓ ULTRAgrade® certificate of analysis
- ✓ Ultra low TOC (< 50 ppb) water

Anion Standards for Ion Chromatography in Ultra Low TOC Water

Element	Volume	1000 µg/mL	
		Catalog #	Price
Acetate	125 mL	ICC-014	***
	4 x 125 mL	ICC-014-5	***
Benzoate	125 mL	ICC-015	***
	4 x 125 mL	ICC-015-5	***
Bromate	125 mL	ICC-010	***
	4 x 125 mL	ICC-010-5	***
Bromide	125 mL	ICC-001	***
	4 x 125 mL	ICC-001-5	***
Chlorate	125 mL	ICC-011	***
	4 x 125 mL	ICC-011-5	***
Chloride	125 mL	ICC-002	***
	4 x 125 mL	ICC-002-5	***
Chlorite	125 mL	ICC-012	***
	4 x 125 mL	ICC-012-5	***
Chromate	125 mL	ICC-016	***
	4 x 125 mL	ICC-016-5	***
Citrate	125 mL	ICC-017	***
	4 x 125 mL	ICC-017-5	***
Fluoride	125 mL	ICC-003	***
	4 x 125 mL	ICC-003-5	***
Formate	125 mL	ICC-018	***
	4 x 125 mL	ICC-018-5	***
Glycolate	125 mL	ICC-019	***
	4 x 125 mL	ICC-019-5	***
Iodide	125 mL	ICC-020	***
	4 x 125 mL	ICC-020-5	***
Lactate	125 mL	ICC-021	***
	4 x 125 mL	ICC-021-5	***
Malate	125 mL	ICC-022	***
	4 x 125 mL	ICC-022-5	***
Maleate	125 mL	ICC-023	***
	4 x 125 mL	ICC-023-5	***
Methanesulfonate	125 mL	ICC-024	***
	4 x 125 mL	ICC-024-5	***

Element	Volume	1000 µg/mL	
		Catalog #	Price
Nitrate	125 mL	ICC-004	***
	4 x 125 mL	ICC-004-5	***
Nitrate (as N)	125 mL	ICC-004A	***
	4 x 125 mL	ICC-004A-5	***
Nitriiotriacetate	125 mL	ICC-025	***
	4 x 125 mL	ICC-025-5	***
Nitrite	125 mL	ICC-007	***
	4 x 125 mL	ICC-007-5	***
Nitrite (as N)	125 mL	ICC-007A	***
	4 x 125 mL	ICC-007A-5	***
Oxalate	125 mL	ICC-026	***
	4 x 125 mL	ICC-026-5	***
Perchlorate	125 mL	ICC-013	***
	4 x 125 mL	ICC-013-5	***
Phosphate	125 mL	ICC-005	***
	4 x 125 mL	ICC-005-5	***
ortho-Phosphate (as P)	125 mL	ICC-005A	***
	4 x 125 mL	ICC-005A-5	***
Phthalate	125 mL	ICC-027	***
	4 x 125 mL	ICC-027-5	***
Propionate	125 mL	ICC-028	***
	4 x 125 mL	ICC-028-5	***
Succinate	125 mL	ICC-029	***
	4 x 125 mL	ICC-029-5	***
Sulfate	125 mL	ICC-006	***
	4 x 125 mL	ICC-006-5	***
Tartrate	125 mL	ICC-030	***
	4 x 125 mL	ICC-030-5	***
Thiocyanate	125 mL	ICC-031	***
	4 x 125 mL	ICC-031-5	***
Thiosulfate	125 mL	ICC-032	***
	4 x 125 mL	ICC-032-5	***

Anion Mixtures for Ion Chromatography

IC Anions Mixture #1

5 Analytes

chloride (Cl ⁻)	30 µg/mL
fluoride (F ⁻)	20 µg/mL
nitrate (NO ₃ ⁻)	100 µg/mL
phosphate (PO ₄ ⁻³)	150 µg/mL
sulfate (SO ₄ ⁻²)	150 µg/mL

in H₂O

ICC-200 **125 mL** *******

IC Anions Mixture #2

6 Analytes

bromide (Br ⁻)	400 µg/mL
chloride (Cl ⁻)	200 µg/mL
fluoride (F ⁻)	100 µg/mL
nitrate (NO ₃ ⁻)	400 µg/mL
phosphate (PO ₄ ⁻³)	600 µg/mL
sulfate (SO ₄ ⁻²)	400 µg/mL

in H₂O

ICC-210 **125 mL** *******

IC Detector Linearity Kit

Kit - contains five ampules

1 x 10 mL of each individual standard in H₂O

nitrate	5 µg/mL
nitrate	10 µg/mL
nitrate	25 µg/mL
nitrate	50 µg/mL
nitrate	100 µg/mL

ICC-759 **Kit** *******

Cation Standards for Ion Chromatography in Ultra Low TOC Water

Element	Volume	Catalog #	Price
Ammonium (NH₄⁺) <i>in H₂O</i>	125 mL	ICC-101	***
	4 x 125 mL	ICC-101-5	***
Barium (Ba⁺²) <i>in 0.2% HNO₃</i>	125 mL	ICC-102	***
	4 x 125 mL	ICC-102-5	***
Calcium (Ca⁺²) <i>in 0.2% HNO₃</i>	125 mL	ICC-103	***
	4 x 125 mL	ICC-103-5	***
Lithium (Li⁺) <i>in 0.2% HNO₃</i>	125 mL	ICC-104	***
	4 x 125 mL	ICC-104-5	***

Element	Volume	Catalog #	Price
Magnesium (Mg⁺²) <i>in 0.2% HNO₃</i>	125 mL	ICC-105	***
	4 x 125 mL	ICC-105-5	***
Potassium (K⁺) <i>in 0.2% HNO₃</i>	125 mL	ICC-106	***
	4 x 125 mL	ICC-106-5	***
Sodium (Na⁺) <i>in 0.1% HNO₃</i>	125 mL	ICC-107	***
	4 x 125 mL	ICC-107-5	***
Strontium (Sr⁺²) <i>in 0.2% HNO₃</i>	125 mL	ICC-108	***
	4 x 125 mL	ICC-108-5	***

IC Cations Mixture

6 Analytes

ammonium (NH ₄ ⁺)	400 µg/mL
calcium (Ca ⁺²)	1000 µg/mL
lithium (Li ⁺)	50 µg/mL
magnesium (Mg ⁺²)	200 µg/mL
potassium (K ⁺)	200 µg/mL
sodium (Na ⁺)	200 µg/mL

in 0.2% HNO₃

ICC-300 **125 mL** *******

IC Cations Mixture

4 Analytes

ammonium (NH ₄ ⁺)	100 µg/mL
lithium (Li ⁺)	10 µg/mL
potassium (K ⁺)	50 µg/mL
sodium (Na ⁺)	100 µg/mL

in 0.2% HNO₃

ICC-310 **125 mL** *******

IC Cations Mixture

4 Analytes

barium (Ba ⁺²)	1600 µg/mL
calcium (Ca ⁺²)	400 µg/mL
magnesium (Mg ⁺²)	200 µg/mL
strontium (Sr ⁺²)	600 µg/mL

in 0.2% HNO₃

ICC-320 **125 mL** *******