

Chem Service, in this Environmental Catalog, provides only an abridged offering of the high purity inorganic solution standards as well as high purity inorganic metal, salt and oxide standards available. We are including a short selection from the extensive listing of available standards following a representative table of contents compendium. If you want the complete 65 page free Chem Service High Purity Inorganic Analytical Standards Catalog, please complete and return the response card.

These high purity single and multielement standards produced by High Purity Standards are of the same high quality as those produced at NIST. Accuracy for single element solutions is certified to be within 0.3% and for the multielement solutions within 0.5%.

We welcome requests for multielement special mixtures designed by our customers. Call us today to discuss your special mix needs. All the standards are certified accurate for one year from the day of shipment. A Certificate of Analysis and a Material Safety Data Sheet are included with each standard.

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HIGH-PURITY METALS, SALTS, & OXIDES

Note: Items marked in orange are included in this catalog.



Single-Element Standards 1000ug/mL

For the following standards, all concentrations are $1000 \pm 3\mu\text{g/mL}$ in aqueous solution unless noted otherwise. Most standards are packaged in 100mL, 250mL, and 500mL high-density DOT-2E bottles. Please state a specific volume when ordering.

The accuracy of all standards is certified against NIST Spectrometric Standard Solutions. A Certificate of Analysis and Material Safety Data Sheet are included with each standard. All standards are certified accurate for a period of one year from the date of shipment. **Please add to the catalog number -A for 100mL, -B for 250mL and -C for 500mL.**

Catalog No.	Element	Source	Purity	Matrix	100 mL	250 mL	500 mL
X10001-1 X10001-2	Aluminum	Al metal	99.999%	2% HNO ₃ 2% HCl			
X10002-2 X10002-3 X10002-6 X10002-7 X10002-8	Antimony	Sb metal Sb metal as b ⁺³ Sb metal as b ⁺⁵ Sb metal	99.999%	20% HCl 5% HNO ₃ + 0.1% HF 20% HCl 2% KOH 5% Tartaric Acid			
X10003-1 X10003-2 X10003-6 X10003-7	Arsenic	As metal As metal As ₂ O ₃ as As ⁺³ As ₂ O ₃ as As ⁺⁵	99.999%	2% HNO ₃ 2% HCl 2% HCl 2% NaOH			
X10004-1 X10004-2	Barium	BaCO ₃	99.99%	2% HNO ₃ 2% HCl			
X10005-1 X10005-2	Beryllium	Be acetate	99.99+%	2% HNO ₃ 2% HCl			
X10006-1 X10006-2	Bismuth	Bi metal	99.999%	2% HNO ₃ 2% HCl			
X10007-4	Boron	H ₃ BO ₃	99.99%	H ₂ O			
X10008-1 X10008-2	Cadmium	Cd metal	99.999%	2% HNO ₃ 2% HCl			
X10009-1 X10009-2	Calcium	CaCO ₃	99.997%	2% HNO ₃ 2% HCl			
X100071-4	Carbon	Na ₂ C ₂ O ₄	99.9+%	H ₂ O			
X100010-1 X100010-2	Cerium	CeO ₂	99.99+%	2% HNO ₃ 2% HCl			
X100011-1 X100011-2	Cesium	Cs ₂ CO ₃	99.99+%	1% HNO ₃ 1% HCl			
X100012-1 X100012-2 X100012-6 X100012-7	Chromium	Cr metal Cr metal Cr metal as Cr ⁺³ K ₂ Cr ₂ O ₇ as Cr ⁺⁶	99.999% 99.999% 99.999% 99.998%	2% HNO ₃ 2% HCl 2% HCl H ₂ O			
X100013-1 X100013-2	Cobalt	Co metal	99.998%	2% HNO ₃ 2% HCl			
X100014-1 X100014-2	Copper	Cu metal	99.999%	2% HNO ₃ 2% HCl			
X100015-1 X100015-2	Dysprosium	Dy ₂ O ₃	99.99%	2% HNO ₃ 2% HCl			
X100016-1 X100016-2	Erbium	Er ₂ O ₃	99.99%	2% HNO ₃ 2% HCl			
X100017-1 X100017-2	Europium	Eu ₂ O ₃	99.99%	2% HNO ₃ 2% HCl			
X100018-1 X100018-2	Gadolinium	Gd ₂ O ₃	99.99%	2% HNO ₃ 2% HCl			
X100019-1 X100019-2	Gallium	Ga metal	99.999%	2% HNO ₃ 2% HCl			
X100020-1 X100020-5	Germanium	(NH ₄) ₂ GeF ₅ Ge metal	99.99% 99.999%	1% HNO ₃ 5% Oxalic Acid			
X100021-2	Gold	Au metal	99.999%	2% HCl			
X100022-3	Hafnium	Hf metal	99.9+%	2% HNO ₃ + 0.5% HF			
X100023-1 X100023-2	Holmium	Ho ₂ O ₃	99.99%	2% HNO ₃ 2% HCl			
X100024-1 X100024-2	Indium	In metal	99.999%	2% HNO ₃ 2% HCl			
X100025-2	Iridium	(NH ₄) ₃ IrCl ₆	99.998%	10% HCl			
X100026-1 X100026-2 X100026-6 X100026-7	Iron	Fe metal as Fe ⁺² as Fe ⁺³	99.999%	2% HNO ₃ 2% HCl 2% HCl 2% HNO ₃			
X100027-1 X100027-2	Lanthanum	La ₂ O ₃	99.99%	2% HNO ₃ 2% HCl			
X100028-1 X100028-2	Lead	Pb metal	99.995%	2% HNO ₃ 2% HCl			

Please add to the catalog number -A for 100mL, -B for 250mL and -C for 500mL.

Catalog No.	Element	Source	Purity	Matrix	100 mL	250 mL	500 mL	
X100029-1	Lithium	Li ₂ CO ₃	99.999%	1% HNO ₃				
X100029-2		LiCl	99.99%	1% HCl				
X100029-6I		⁶ Li ₂ CO ₃	95.5%	1% HNO ₃				
X100030-1	Lutetium	Lu ₂ O ₃	99.99%	2% HNO ₃				
X100030-2				2% HCl				
X100031-1	Magnesium	Mg metal	99.99%	2% HNO ₃				
X100031-2				2% HCl				
X100032-1	Manganese	Mn metal	99.99%	2% HNO ₃				
X100032-2				2% HCl				
X100033-1	Mercury	Hg metal	99.998%	2% HNO ₃				
X100033-1D		Diphenylmercury	97%	2% HNO ₃				
X100034-2	Molybdenum	Mo metal	99.999%	2% HCl				
X100034-3				(NH ₄) ₂ MoO ₄	2% HNO ₃ + 0.1% HF			
X100034-4					H ₂ O			
X100035-1	Neodymium	Nd ₂ O ₃	99.99%	2% HNO ₃				
X100035-2				2% HCl				
X100036-1	Nickel	Ni metal	99.999%	2% HNO ₃				
X100036-2				2% HCl				
X100037-3	Niobium	Nb metal	99.99%	2% HNO ₃ + 0.5% HF				
X100070-2	Osmium	(NH ₄) ₂ OsCl ₆	99.996%	10% HCl				
X100038-1	Palladium	Pd metal	99.99%	10% HNO ₃				
X100038-2				5% HCl				
X100039-1	Phosphorus	NH ₄ H ₂ PO ₄	99.99+%	0.05% HNO ₃				
X100040-2	Platinum	Pt metal	99.99%	5% HCl				
X100041-1	Potassium	KNO ₃	99.999%	1% HNO ₃				
X100041-2				KCl	99.99%	1% HCl		
X100042-1	Praseodymium	Pr ₆ O ₁₁	99.99%	2% HNO ₃				
X100042-2				2% HCl				
X100043-1	Rhenium	Re metal	99.99%	2% HNO ₃				
X100043-2				2% HCl				
X100044-2	Rhodium	(NH ₄) ₃ RhCl ₆	99.99%	10% HCl				
X100045-1	Rubidium	Rb ₂ CO ₃	99.975%	1% HNO ₃				
X100045-2				1% HCl				
X100046-2	Ruthenium	(NH ₄) ₂ RuCl ₆	99.99%	10% HCl				
X100047-1	Samarium	Sm ₂ O ₃	99.99%	2% HNO ₃				
X100047-2				2% HCl				
X100048-1	Scandium	Sc ₂ O ₃	99.99%	2% HNO ₃				
X100048-2				2% HCl				
X100049-1	Selenium	Se metal	99.99%	2% HNO ₃				
X100049-2				2% HCl				
X100050-4	Silicon	Na ₂ SiO ₃	99.99%	H ₂ O				
X100050-4F		(NH ₄) ₂ SiF ₆	99.99%	H ₂ O				
X100051-1	Silver	Ag metal	99.999%	2% HNO ₃				
X100052-1	Sodium	NaNO ₃	99.99+%	1% HNO ₃				
X100052-2				NaCl	99.99+%	1% HCl		
X100053-1	Strontium	SrCO ₃	99.999%	2% HNO ₃				
X100053-2				2% HCl				
X100054-5	Sulfur	H ₂ SO ₄	99.999%	H ₂ O				
X100055-3	Tantalum	Ta metal	99.99%	2% HNO ₃ + 0.5% HF				
X100056-2	Tellurium	Te metal	99.99%	2% HCl				
X100056-3				2% HNO ₃ + 0.2% HF				
X100057-1	Terbium	Tb ₄ O ₇	99.99%	2% HNO ₃				
X100057-2				2% HCl				
X100058-1	Thallium	Tl metal	99.999%	2% HNO ₃				
X100059-1	Thorium	ThO ₂	99.99%	2% HNO ₃				
X100059-2				2% HCl				
X100060-1	Thulium	Tm ₂ O ₃	99.99%	2% HNO ₃				
X100060-2				2% HCl				
X100061-2	Tin	Sn metal	99.998%	20% HCl				
X100061-3				2% HNO ₃ + 0.5% HF				
X100062-2	Titanium	Ti metal	99.99%	20% HCl				
X100062-3				2% HNO ₃ + 0.1% HF				
X100063-3	Tungsten	W metal	99.99%	2% HNO ₃ + 1% HF				
X100064-1	Uranium	U ₃ O ₈	99.968%	2% HNO ₃				
X100065-1	Vanadium	NH ₄ VO ₃	99.99%	2% HNO ₃				
X100065-2				2% HCl				

Please add to the catalog number -A for 100mL, -B for 250mL and -C for 500mL.

Catalog No.	Element	Source	Purity	Matrix	100 mL	250 mL	500 mL
X100066-1 X100066-2	Ytterbium	Yb ₂ O ₃	99.99%	2% HNO ₃ 2% HCl			
X100067-1 X100067-2	Yttrium	Y ₂ O ₃	99.99%	2% HNO ₃ 2% HCl			
X100068-1 X100068-2	Zinc	Zn metal	99.999%	2% HNO ₃ 2% HCl			
X100069-3	Zirconium	Zr metal	99.99%	2% HNO ₃ + 0.5% HF			

All single-element standards are available as dilutions (Ex: 1, 10, 100, 500ppm, etc.).

100 mL 250 mL 500 mL 1000

These standards are not stock items and will be available for shipment within 48 hours.

Single-Element Standards 10.00 mg/mL

For the following standards, all concentrations are 10.00 ± 0.03 mg/mL (10,000 µg/mL) in aqueous solution unless noted otherwise. Most standards are packaged in 100, 250, and 500 mL HDPE laboratory grade bottles. The density is provided on the Certificate of Analysis as additional information for the user. Please state a specific volume when ordering.

The accuracy of all standards is certified against NIST Spectrometric Standard Solutions. A Certificate of Analysis and Material Safety Data Sheet are included with each standard. All standards are certified accurate for a period of one year from the date of shipment. **Please add to the catalog number -100 for 100mL, -250 for 250mL and -500 for 500mL.**

Catalog No.	Element	Source	Purity	Matrix	100 mL	250 mL	500 mL
X10M 1-1 X10M 1-2	Aluminum	Al metal	99.999%	4% HNO ₃ 10% HCl			
X10M 2-2 X10M 2-3	Antimony	Sb metal	99.999%	50% HCl 10% HNO ₃ + 2% HF			
X10M 3-1 X10M 3-2	Arsenic	As metal	99.999%	4% HNO ₃ 15% HCl			
X10M 4-1 X10M 4-2	Barium	BaCO ₃	99.99%	4% HNO ₃ 5% HCl			
X10M 5-1 X10M 5-2	Beryllium	Be acetate	99.99+%	4% HNO ₃ 10% HCl			
X10M 6-1	Bismuth	Bi metal	99.999%	4% HNO ₃			
* X5M 7-4	Boron	H ₃ BO ₃	99.99%	H ₂ O			
X10M 8-1 X10M 8-2	Cadmium	Cd metal	99.999%	4% HNO ₃ 10% HCl			
X10M 9-1 X10M 9-2	Calcium	CaCO ₃	99.99+%	4% HNO ₃ 5% HCl			
X10M 10-1 X10M 10-2	Cerium	CeO ₂	99.99+%	4% HNO ₃ 10% HCl			
X10M 11-1 X10M 11-2	Cesium	Cs ₂ CO ₃	99.99+%	1% HNO ₃ 1% HCl			
X10M 12-1 X10M 12-2 X10M 12-7	Chromium	Cr metal Cr metal K ₂ Cr ₂ O ₇ as Cr ⁺⁶	99.999% 99.999% 99.998%	4% HNO ₃ 10% HCl H ₂ O			
X10M 13-1 X10M 13-2	Cobalt	Co metal	99.998%	4% HNO ₃ 10% HCl			
X10M 14-1 X10M 14-2	Copper	Cu metal	99.999%	4% HNO ₃ 10% HCl			
X10M 15-1 X10M 15-2	Dysprosium	Dy ₂ O ₃	99.99%	4% HNO ₃ 10% HCl			
X10M 16-1 X10M 16-2	Erbium	Er ₂ O ₃	99.99%	4% HNO ₃ 10% HCl			
X10M 17-1 X10M 17-2	Europium	Eu ₂ O ₃	99.99%	4% HNO ₃ 10% HCl			
X10M 18-1 X10M 18-2	Gadolinium	Gd ₂ O ₃	99.99%	4% HNO ₃ 10% HCl			
X10M 19-1 X10M 19-2	Gallium	Ga metal	99.999%	4% HNO ₃ 10% HCl			
X10M 20-5	Germanium	Ge metal	99.999%	15% Oxalic acid			
X10M 21-2	Gold	Au metal	99.999%	10% HCl			
X10M 22-3	Hafnium	Hf metal	99.9+%	10% HNO ₃ + 2% HF			
X10M 23-1 X10M 23-2	Holmium	Ho ₂ O ₃	99.99%	4% HNO ₃ 10% HCl			
X10M 24-1 X10M 24-2	Indium	In metal	99.999%	4% HNO ₃ 10% HCl			

High-Purity

X10M 26-1 X10M 26-2	Iron	Fe metal	99.999%	4% HNO ₃ 10% HCl
X10M 27-1 X10M 27-2	Lanthanum	La ₂ O ₃	99.99%	4% HNO ₃ 10% HCl
X10M 28-1	Lead	Pb metal	99.995%	4% HNO ₃
X10M 29-1 X10M 29-2	Lithium	Li ₂ CO ₃ LiCl	99.999%	1% HNO ₃ 1% HCl
X10M 30-1 X10M 30-2	Lutetium	Lu ₂ O ₃	99.99%	4% HNO ₃ 10% HCl
X10M 31-1 X10M 31-2	Magnesium	Mg metal	99.99%	4% HNO ₃ 10% HCl
X10M 32-1 X10M 32-2	Manganese	Mn metal	99.99%	4% HNO ₃ 10% HCl
X10M 33-1	Mercury	Hg metal	99.998%	4% HNO ₃
X10M 34-2 X10M 34-3	Molybdenum	Mo metal	99.999%	10% HCl 4% HNO ₃ + 2% HF
X10M 35-1 X10M 35-2	Neodymium	Nd ₂ O ₃	99.99%	4% HNO ₃ 10% HCl
X10M 36-1 X10M 36-2	Nickel	Ni metal	99.999%	4% HNO ₃ 10% HCl
X10M 37-3	Niobium	Nb metal	99.99%	4% HNO ₃ + 1% HF
X10M 38-1 X10M 38-2	Palladium	Pd metal	99.99%	4% HNO ₃ 10% HCl
X10M 39-1	Phosphorus	NH ₄ H ₂ PO ₄	99.99+%	0.05% HNO ₃
X10M 40-2	Platinum	Pt metal	99.99%	10% HCl
X10M 41-1 X10M 41-2	Potassium	KNO ₃ KCl	99.999% 99.99%	1% HNO ₃ 1% HCl
X10M 42-1 X10M 42-2	Praseodymium	Pr ₆ O ₁₁	99.99%	4% HNO ₃ 10% HCl
X10M 43-1	Rhenium	Re metal	99.99%	4% HNO ₃
X10M 45-1 X10M 45-2	Rubidium	RbNO ₃ RbCl	99.95%	1% HNO ₃ 1% HCl
X10M 47-1 X10M 47-2	Samarium	Sm ₂ O ₃	99.99%	4% HNO ₃ 10% HCl
X10M 48-1 X10M 48-2	Scandium	Sc ₂ O ₃	99.99%	4% HNO ₃ 10% HCl
X10M 49-1 X10M 49-2	Selenium	Se metal	99.99%	5% HNO ₃ 10% HCl
X10M 50-4 X10M 50-4F	Silicon	Na ₂ SiO ₃ (NH ₄) ₂ SiF ₆	99.99% 99.98%	H ₂ O H ₂ O
X10M 51-1	Silver	Ag metal	99.999%	4% HNO ₃
X10M 52-1 X10M 52-2	Sodium	NaNO ₃ NaCl	99.99+% 99.99+%	1% HNO ₃ 1% HCl
X10M 53-1 X10M 53-2	Strontium	SrCO ₃	99.999%	4% HNO ₃ 10% HCl
X10M 54-5	Sulfur	H ₂ SO ₄	99.999%	H ₂ O
X10M 55-3	Tantalum	Ta metal	99.99%	5% HNO ₃ + 2% HF
X10M 56-2	Tellurium	Te metal	99.99%	40% HCl
X10M 57-1 X10M 57-2	Terbium	Tb ₄ O ₇	99.99%	4% HNO ₃ 10% HCl
X10M 58-1	Thallium	Tl metal	99.999%	4% HNO ₃
X10M 59-1	Thorium	ThO ₂	99.99%	4% HNO ₃
X10M 60-1 X10M 60-2	Thulium	Tm ₂ O ₃	99.99%	4% HNO ₃ 10% HCl
X10M 61-2 X10M 61-3	Tin	Sn metal	99.998%	60% HCl 5% HNO ₃ + 2% HF
X10M 62-2 X10M 62-3	Titanium	Ti metal	99.99%	40% HCl 5% HNO ₃ + 2% HF
X10M 63-3	Tungsten	W metal	99.99%	5% HNO ₃ + 2% HF
X10M 64-1	Uranium	U ₃ O ₈	99.968%	4% HNO ₃
*X5M 65-1	Vanadium	NH ₄ VO ₃	99.99%	5% HNO ₃
X10M 66-1 X10M 66-2	Ytterbium	Yb ₂ O ₃	99.99%	4% HNO ₃ 10% HCl
X10M 67-1 X10M 67-2	Yttrium	Y ₂ O ₃	99.99%	4% HNO ₃ 10% HCl
X10M 68-1 X10M 68-2	Zinc	Zn metal	99.999%	4% HNO ₃ 10% HCl
X10M 69-3	Zirconium	Zr metal	99.998%	5% HNO ₃ + 2% HF

*Available in concentrations of 5,000ug/mL only.

ICP Multielement Standards - EPA Method 200.7 Calibration Standards

Please add to the catalog number -A for 100mL, -B for 250mL and -C for 500mL.

Catalog No.	Element	Concentration	Element	Concentration	Matrix	Volume	Price
XICP-200.7-6	Al	20 µg/mL	Mn	20 µg/mL	2% HNO ₃ + Tr HF	100 mL	
	Sb	20	Hg*	20		250 mL	
	As	20	Mo	20		500 mL	
	Ba	20	Ni	20			
	Be	20	P	100			
	B	20	K	100			
	Cd	20	Se	20			
	Ca	20	Si	100			
	Cr	20	Ag	5			
	Co	20	Na	20			
	Cu	20	Sr	20			
	Fe	20	Tl	20			
	Pb	20	Sn	20			
	Li	20	V	20			
	Mg	20	Zn	20			
							*Shipped Separately
XICP-200.7-7	Ba	100 µg/mL	Fe	X1000 µg/mL	2% HNO ₃	100 mL	
	Co	100	V	100		250 mL	
	Cu	100				500 mL	
XICP-200.7-8	Al	200 µg/mL	Mn	50 µg/mL		100 mL	
	Ba	50	Mo	50		250 mL	
	Be	50	Ni	50		500 mL	
	Cd	50	Sn	50			
	Ca	50	SiO ₂	50			
	Co	50	Ti	50			
	Cr	50	Tl	50			
	Cu	50	V	50			
	Fe	300					

ICP Multielement Standards - Quality Control Standards

Catalog No.	Element	Conc.	Element	Conc.	Element	Conc.	Matrix	Volume	Price		
XQCS-1	Al	100 µg/mL	Co	100 µg/mL	K	100 µg/mL	5% HNO ₃ + Tr HF	100 mL			
	As	100	Fe	100	Se	100		250 mL			
	Ba	100	Li	100	Si	100		500 mL			
	Be	100	Mg	100	S*	100					
	B	100	Mn	100	U	100					
	Cd	100	Mo	100	V	100					
	Ca	100	Ni	100	Y	500					
	Cr	100	P	100	Zn	100					
									*Shipped Separately		
	XQCS-2	Sb	100 µg/mL	Sn	100 µg/mL				5% HCl	100 mL	
		Na	100	Y	500					250 mL	
								500 mL			
XQCS-3	Cu	100 µg/mL	Ag	100 µg/mL	Y	500 µg/mL	5% HNO ₃	100 mL			
	Pb	100	Tl	100				250 mL			
								500 mL			
XQCS-7	Al	100 µg/mL	K	1000 µg/mL	Ag	100 µg/mL	5% HNO ₃	100 mL			
	Ba	100	Si	50	Na	100		250 mL			
	B	100						500 mL			
XQCS-7-M	Al	100 µg/mL	K	1000 µg/mL	Ag	50 µg/mL	5% HNO ₃	100 mL			
	Ba	100	Si	100	Na	100		250 mL			
	B	100						500 mL			
XQCS-19	Sb	100 µg/mL	Cu	100 µg/mL	Ni	100 µg/mL	5% HNO ₃ + Tr HF	100 mL			
	As	100	Fe	100	Se	100		250 mL			
	Be	100	Pb	100	Tl	100		500 mL			
	Cd	100	Mg	100	Ti	100					
	Ca	100	Mn	100	V	100					
	Cr	100	Mo	100	Zn	100					
	Co	100									
XQCS-26	Al	100 µg/mL	Cr	100 µg/mL	Pb	100 µg/mL	5% HNO ₃ + Tr HF	100 mL			
	Ag	100	Cu	100	Sb	100		250 mL			
	As	100	Fe	100	Se	100		500 mL			
	B	100	K	X1000	Si	50					
	Ba	100	Mg	100	Ti	100					
	Be	100	Mn	100	Tl	100					
	Ca	100	Mo	100	V	100					
	Cd	100	Na	100	Zn	100					
	Co	100	Ni	100							

Please add to the catalog number -A for 100mL, -B for 250mL and -C for 500mL.

High-Purity

ICP Multielement Standards - Spiking Solutions for Water & Soil Samples

Catalog No.	Matrix	Volume	Price	
XICP-SSWS	5% HNO ₃ + Tr HF	100 mL		
		250 mL		
		500 mL		
		Al 200 µg/mL	Fe 100 µg/mL	
		Sb 50	Pb 50	
		As 200	Mn 50	
		Ba 200	Ni 50	
		Be 5	Se 200	
		Cd 5	Ag 5	
		Cr 20	Tl 200	
		Co 50	V 50	
		Cu 25	Zn 50	
	XICP-SSWS-M	5% HNO ₃ + Tr HF	100 mL	
250 mL				
500 mL				
		Al 200 µg/mL	Fe 100 µg/mL	
		Sb 50	Pb 2	
		As 4	Mn 50	
		Ba 200	Ni 50	
		Be 5	Se 1	
		Cd 5	Ag 5	
		Cr 20	Tl 5	
		Co 50	V 50	
		Cu 25	Zn 50	
XAAS-SSWS		5% HNO ₃ + Tr HF	100 mL	
	250 mL			
		Sb 10.0 µg/mL	500 mL	
		As 4.0		
		Cd 0.5		
		Pb 2.0		
		Se 1.0		
		Tl 5.0		

*Please add to the catalog number
-A for 100mL, -B for 250mL and -C for 500mL.*

ICP Multielement Standards - Primary Drinking Water Metals

Catalog No.	Matrix	Volume	Price	
XDWPS	2% HNO ₃	100 mL		
		250 mL		
		500 mL		
		As 100 µg/mL	Pb 100 µg/mL	
		Ba 50	Hg*	20
		Cd 50	Se	50
		Cr 100	Ag	10

* Shipped Separately

ICP - Multielement Standards - Secondary Drinking Water Metals

Catalog No.	Matrix	Volume	Price	
XDWSS	2% HNO ₃	100 mL		
		250 mL		
		500 mL		
		Cu 50 µg/mL		
		Fe 100		
	Mn 50			
	Zn 50			

ICP Multielement Standards - Simulated Rainwater

The following Simulated Rainwater Standards are available in 250 mL, packaged as 5 x 50 mL bottles. The concentrations shown below are the targeted values for each level.

Catalog No.	XSR LEVEL I	XSR LEVEL II
pH, 25°C	4.3	3.6
Specific Conductance (µs/cm, 25°C)	26	130
Components:	mg/L	mg/L
Fluoride	0.05	0.10
Chloride	0.20	1.00
Nitrate	0.50	7.0
Sulfate	2.00	11.00
Sodium	0.20	0.40
Potassium	0.05	0.10
Ammonium	0.50	1.00
Calcium	0.01	0.05
Magnesium	0.02	0.05
Volume	250 mL	250 mL
(shipped as)	5 x 50 mL	5 x 50 mL
Price		

ICP Multielement Standards - Initial Check Verification Standards

All of the following standards are prepared from high-purity metals or salts in subboiling distilled acids and packaged in 100, 250, and 500 mL HDPE laboratory grade bottles.

The accuracy of all standards is certified to ± 0.5% of the stated concentrations against NIST SRM Spectrometric Standard Solutions. The NIST SRM 3100 series is referenced on each Certificate of Analysis. Each standard is accompanied by a Certificate of Analysis and a Material Safety Data Sheet. *Please add to the catalog number -A for 100mL, -B for 250mL and -C for 500mL.*

Catalog No.	Elements	Conc.	Elements	Conc.	Elements	Conc.	Matrix	Volume	Price
XICV-I	Al As Ba Be Bi B Cd Ca Cr Co	µg/mL 100 100 50 50 100 100 50 100 50 50	Cu Fe Pb Li Mg Mn Mo Ni P K	µg/mL 100 100 100 100 50 100 100 100 200 200	Se Si * Na * S * Sr Tl V Zn	µg/mL 200 100 162 200 100 100 50 50	5% HNO ₃ + Tr HF		
								XICV-II	Sb Sn Ti
XICV-III	Au Pd Pt	50 50 50			Matrix 5% HCl		5% HNO ₃ + Tr HF		

Certified Reference Materials - Certified Waste Water - Trace Metals Solutions

HPS is offering a series of certified reference solutions which simulate the concentrations found in a variety of materials. These solutions, which are directly traceable to NIST, may be used in laboratory performance evaluation, quality control, and method development. All of the following solutions are certified to $\pm 0.5\%$ and are ideally suited for AAS, ICP, and ICP-MS.

Listed below are the concentrations that will be found when each sample is diluted to **one liter**.

Catalog No	XCWW-TM-A	XCWW-TM-B	XCWW-TM-C	XCWW-TM-D	XCWW-TM-E	XCWW-TM-F	XCWW-TM-G	XCWW-TM-H
Matrix	10% HNO ₃ + Tr HF	10% HNO ₃ + Tr HF	10% HNO ₃ + Tr HF	10% HNO ₃ + Tr HF	10% HNO ₃ + Tr HF	10% HNO ₃ + Tr HF	10% HNO ₃ + Tr HF	10% HNO ₃ + Tr HF
Elements:	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL
Aluminum	0.050	0.200	0.500	1.00	0.025	0.025	1.00	0.100
Antimony	0.010	0.050	0.150	0.250	0.005	0.250	0.005	0.200
Arsenic	0.010	0.050	0.150	0.250	0.005	0.005	0.250	0.100
Barium	0.050	0.200	0.500	1.00	0.025	1.00	0.025	0.100
Beryllium	0.010	0.050	0.150	0.250	0.005	0.005	0.250	0.020
Boron	0.050	0.200	0.500	1.00	0.025	1.00	0.025	0.250
Cadmium	0.010	0.050	0.150	0.250	0.025	0.005	0.250	0.100
Chromium	0.050	0.200	0.500	1.00	0.025	1.00	0.025	0.500
Cobalt	0.050	0.200	0.500	1.00	0.025	0.025	1.00	0.500
Copper	0.050	0.200	0.500	1.00	0.025	1.00	0.025	0.500
Iron	0.050	0.200	0.500	1.00	0.025	0.025	1.00	0.250
Lead	0.050	0.200	0.500	1.00	0.025	1.00	0.025	0.500
Manganese	0.050	0.200	0.500	1.00	0.025	0.025	1.00	0.100
Mercury*	0.0010	0.0050	0.010	0.02	0.001	0.020	0.005	0.0010
Molybdenum	0.050	0.200	0.500	1.00	0.025	0.025	1.00	0.100
Nickel	0.050	0.200	0.500	1.00	0.025	1.00	0.250	0.500
Selenium	0.010	0.050	0.150	0.250	0.005	0.005	0.250	0.050
Silver	0.010	0.050	0.150	0.250	0.005	0.250	0.005	0.020
Strontium	0.050	0.200	0.500	1.00	0.025	0.025	1.00	0.100
Thallium	0.010	0.050	0.150	0.250	0.005	0.025	0.005	0.250
Vanadium	0.050	0.200	0.500	1.00	0.025	0.025	1.00	0.500
Zinc	0.050	0.200	0.500	1.00	0.025	1.000	0.025	0.500
*The concentration of Mercury cannot be guaranteed for any extended period of time due to the nature of the element.								
Volume	10 mL	10 mL	10 mL	10 mL	10 mL	10 mL	10 mL	10 mL
Price								

Certified Reference Materials - Certified Waste Water - Cyanide Solutions

Listed below are the concentrations that will be found when each 10 mL sample is diluted to **two liters**.

Catalog No.	XCWW-CN-A	XCWW-CN-B	XCWW-CN-C	XCWW-CN-D	XCWW-CN-E	XCWW-CN-F
Components:	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL
Complexed Cyanide	0.025	0.100	0.500	0.020	0.200	0.350
Free Cyanide	0.025	0.100	0.500	0.020	0.200	0.350
Total Cyanide	0.050	0.200	1.000	0.040	0.400	0.700
Volume	10 mL	10 mL	10 mL	10 mL	10 mL	10 mL
Price						

Certified Reference Materials - Certified Waste Water - Nutrients Solutions

Listed below are the concentrations that will be found when each 10 mL sample is diluted to **one liter**.

Catalog No.	XCWW-N-A	XCWW-N-B	XCWW-N-C
Components:	µg/mL	µg/mL	µg/mL
Nitrogen from NH ₄ Cl + NH ₄ H ₂ PO ₄	1	15	25
Nitrogen from NaNO ₂ + NaNO ₃	1	15	25
Phosphorus from NH ₄ H ₂ PO ₄	1	5	10
Volume	10 mL	10 mL	10 mL
Price			

Certified Reference Materials - Certified Waste Water - Demand Solutions

Listed below are the concentrations that will be found when each 5 mL sample is diluted to **one liter**.

Catalog No.	XCWW-TOC-A	XCWW-TOC-B	XCWW-TOC-C	XCWW-TOC-D	XCWW-TOC-E
Component:	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL
TOC	1	10	20	30	40
Volume	5 mL	5 mL	5 mL	5 mL	5 mL
Price					