

ICP/MS Multi-Element Standards



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

AccuStandard's ICP/MS Standards are formulated to meet the needs of this very special instrument. As matrix effect is of utmost concern each standard is formulated in specially purified de-ionized 18 megohm water and Parts per Trillion acids; after both wet chemical and instrumental analysis, the standards are packaged in acid leached FLPE containers to provide required protection and, of course, all standards are traceable to the National Institute of Standards and Technology (NIST) weights and Reference Materials.

ICP/MS Calibration Standards

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

Calibration Standard 1

ICP-MS-CAL-1-1 100 mL
17 components in 5% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Ce (Cerium)	10	140	
Dy (Dysprosium)	10	164	
Er (Erbium)	10	166	
Eu (Europium)	10	153	
Gd (Gadolinium)	10	158	
Ho (Holmium)	10	165	
La (Lanthanum)	10	139	
Lu (Lutetium)	10	175	
Nd (Neodymium)	10	143	
Pr (Praseodymium)	10	141	
Sm (Samarium)	10	152	
Sc (Scandium)	10	45	
Tb (Terbium)	10	159	
Th (Thorium)	10	232	
Tm (Thulium)	10	169	
Yb (Ytterbium)	10	174	
Y (Yttrium)	10	89	

Calibration Standard 4

ICP-MS-CAL-4-1 * 100 mL
12 components in H₂O trace HF

Element	µg/mL	Most Abundant	
		Isotope	
B (Boron)	10	11	
Ge (Germanium)	10	74	
Mo (Molybdenum)	10	98	
Nb (Niobium)	10	93	
P (Phosphorous)	10	31	
Re (Rhenium)	10	187	
Si (Silicon)	10	28	
S (Sulphur)	10	32	
Ta (Tantalum)	10	181	
Ti (Titanium)	10	48	
W (Tungsten)	10	184	
Zr (Zirconium)	10	90	

Calibration Standard 2

ICP-MS-CAL-2-1 100 mL
29 components in 5% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Al (Aluminum)	10	27	
As (Arsenic)	10	75	
Ba (Barium)	10	138	
Be (Beryllium)	10	9	
Bi (Bismuth)	10	209	
Cd (Cadmium)	10	114	
Ca (Calcium)	10	40	
Cs (Cesium)	10	133	
Cr (Chromium)	10	52	
Co (Cobalt)	10	59	
Cu (Copper)	10	63	
Ga (Gallium)	10	69	
In (Indium)	10	115	
Fe (Iron)	10	56	
Pb (Lead)	10	208	
Li (Lithium)	10	7	
Mg (Magnesium)	10	24	
Mn (Manganese)	10	55	
Ni (Nickel)	10	58	
K (Potassium)	10	39	
Rb (Rubidium)	10	85	
Se (Selenium)	10	80	
Ag (Silver)	10	107	
Na (Sodium)	10	23	
Sr (Strontium)	10	88	
Tl (Thallium)	10	205	
U (Uranium)	10	238	
V (Vanadium)	10	51	
Zn (Zinc)	10	64	

Calibration Standard 3

ICP-MS-CAL-3-1 100 mL
10 components in 10% HCl

Element	µg/mL	Most Abundant	
		Isotope	
Sb (Antimony)	10	121	
Au (Gold)	10	197	
Hf (Hafnium)	10	180	
Ir (Iridium)	10	193	
Pd (Palladium)	10	106	
Pt (Platinum)	10	195	
Rh (Rhodium)	10	103	
Ru (Ruthenium)	10	102	
Te (Tellurium)	10	130	
Sn (Tin)	10	120	

Calibration Standard 5

ICP-MS-CAL-5-1 100 mL
1 component in 5% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Hg (Mercury)	10	202	

Calibration Standard Set

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

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

ICP/MS Matrix Blanks

Nitric Acid Blank

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

5% HNO₃ in ASTM Type I Water

Hydrochloric Acid Blank

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

5% HCl in ASTM Type I Water

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

Water Blank

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

ASTM Type I Water



ICP/MS Multi-Element Standards



ICP/MS Multi-Element

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
8 components in 2% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Ba (Barium)	100	138	
Be (Beryllium)	100	9	
Cu (Copper)	100	63	
In (Indium)	100	115	
Li (Lithium)	100	7	
Mg (Magnesium)	100	24	
Tl (Thallium)	100	205	
U (Uranium)	100	238	

ICP-MS-TUNSOL2-1 100 mL
13 components in 2% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Ba (Barium)	100	138	
Be (Beryllium)	100	9	
Bi (Bismuth)	100	209	
Ce (Cerium)	100	140	
Cu (Copper)	100	63	
Ho (Holmium)	100	165	
In (Indium)	100	115	
Pb (Lead)	100	208	
Li (Lithium)	100	7	
Mg (Magnesium)	100	24	
Tl (Thallium)	100	205	
U (Uranium)	100	238	
Y (Yttrium)	100	89	

Interference Check Standards

Solution A
ICP-MS-INTA-1 100 mL
12 components in 1% HNO₃

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

Solution B
ICP-MS-INTB-1 100 mL
11 components in 2% HNO₃

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

Interference Check Standard Set

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

Memory Check Solution

The below MEMCHK 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.

Solution Set

ICP-MS-MEMCHKA-R1-SET 2x100mL

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

Solution A
ICP-MS-MEMCHKA1-R1 100 mL
24 components in 2% HNO₃

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

ICP-MS-MEMCHKA2-R1 100 mL
In 2% HNO₃

Element	µg/mL	Most Abundant Isotope
Ag (Silver)	20	107

Memory Check Solution Set

ICP-MS-MEMCHK-R1-SET 3 x 100 mL

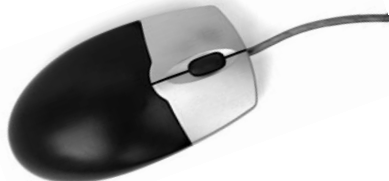
ICP-MS-MEMCHKA1-R1
ICP-MS-MEMCHKA2-R1
ICP-MS-MEMCHKB-R1

Solution B
ICP-MS-MEMCHKB-R1 * 100 mL
3 components in H₂O

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

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Chemical Reference Standards

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ICP/MS Multi-Element Standards



ICP/MS Multi-Element

ICP/MS Standards

Spiking Standards for Water and Soil

ICP-MS-SPIKE-W-1 100 mL

17 components in 5% HNO₃

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

ICP-MS-SPIKE-S-1 100 mL

15 components in 5% HNO₃

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

Sample 1

ICP-MS-QC1-1

9 components in 2% HNO₃

Element	Most Abundant	
	µg/mL	Isotope
Be (<i>Beryllium</i>)	10	9
Bi (<i>Bismuth</i>)	10	209
Ce (<i>Cerium</i>)	10	140
Co (<i>Cobalt</i>)	10	59
In (<i>Indium</i>)	10	115
Pb (<i>Lead</i>)	10	208
Mg (<i>Magnesium</i>)	10	24
Ni (<i>Nickel</i>)	10	58
U (<i>Uranium</i>)	10	238

Sample 2

ICP-MS-QC2-1

25 components in 5% HNO₃

Element	Most Abundant	
	µg/mL	Isotope
Al (<i>Aluminum</i>)	10	27
Sb (<i>Antimony</i>)	10	121
As (<i>Arsenic</i>)	10	75
Ba (<i>Barium</i>)	10	138
Be (<i>Beryllium</i>)	10	9
Cd (<i>Cadmium</i>)	10	114
Ca (<i>Calcium</i>)	10	40
Cr (<i>Chromium</i>)	10	52
Co (<i>Cobalt</i>)	10	59
Cu (<i>Copper</i>)	10	63
Fe (<i>Iron</i>)	10	56
Pb (<i>Lead</i>)	10	208
Mg (<i>Magnesium</i>)	10	24
Mn (<i>Manganese</i>)	10	55
Mo (<i>Molybdenum</i>)	10	98
Ni (<i>Nickel</i>)	10	56
K (<i>Potassium</i>)	10	39
Se (<i>Selenium</i>)	10	80
Ag (<i>Silver</i>)	10	107
Na (<i>Sodium</i>)	10	23
Tl (<i>Thallium</i>)	10	205
Th (<i>Thorium</i>)	10	232
U (<i>Uranium</i>)	10	238
V (<i>Vanadium</i>)	10	51
Zn (<i>Zinc</i>)	10	64

Sample 3

ICP-MS-QC3-1

21 components in 5% HNO₃

Element	Most Abundant	
	µg/mL	Isotope
Sb (<i>Antimony</i>)	10	121
As (<i>Arsenic</i>)	10	75
Be (<i>Beryllium</i>)	10	9
Cd (<i>Cadmium</i>)	10	114
Ca (<i>Calcium</i>)	10	40
Cr (<i>Chromium</i>)	10	52
Co (<i>Cobalt</i>)	10	59
Cu (<i>Copper</i>)	10	63
Fe (<i>Iron</i>)	10	56
Pb (<i>Lead</i>)	10	208
Li (<i>Lithium</i>)	10	7
Mg (<i>Magnesium</i>)	10	24
Mn (<i>Manganese</i>)	10	55
Mo (<i>Molybdenum</i>)	10	98
Ni (<i>Nickel</i>)	10	58
Se (<i>Selenium</i>)	10	80
Sr (<i>Strontium</i>)	10	88
Tl (<i>Thallium</i>)	10	205
Ti (<i>Titanium</i>)	10	48
V (<i>Vanadium</i>)	10	51
Zn (<i>Zinc</i>)	10	64

Single Internal Standards

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

Element	Matrix	Unit	10 µg/mL	100 µg/mL
Bismuth	5% HNO	100 mL	ICP-MS-IS-BI-1	ICP-MS-IS-BI-1-10X
Indium	5% HNO ₃	100 mL	ICP-MS-IS-IN-1	ICP-MS-IS-IN-1-10X
Rhodium	10% HCl	100 mL	ICP-MS-IS-RH-1	ICP-MS-IS-RH-1-10X
Scandium	5% HNO ₃	100 mL	ICP-MS-IS-SC-1	ICP-MS-IS-SC-1-10X
Terbium	5% HNO ₃	100 mL	ICP-MS-IS-TB-1	ICP-MS-IS-TB-1-10X
Yttrium	5% HNO ₃	100 mL	ICP-MS-IS-Y-1	ICP-MS-IS-Y-1-10X

Internal Standard Mix

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

ICP-MS-IS-MIX1-1 100 mL
 7 components in 2% HNO₃

Element	Most Abundant	
	µg/mL	Isotope
Bi (<i>Bismuth</i>)	10	209
Ho (<i>Holmium</i>)	10	165
In (<i>Indium</i>)	10	115
6-Li (<i>Lithium-6</i>)	10	6
Sc (<i>Scandium</i>)	10	45
Tb (<i>Terbium</i>)	10	159
Y (<i>Yttrium</i>)	10	89

ICP/MS

EPA Method 200.8 & 6020

Method 200.8 Determination of Trace Elements in Water and Waste by ICP/MS

Method 200.8 & 6020

Calibration Standards

Calibration Standard #1 (1991 Version)

ICP-MS-200.8-CAL1-1 100 mL

18 components in 5% HNO₃ tr. HF

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

Calibration Standard #1R (1994 Version)

ICP-MS-200.8-CAL1R-1 100 mL

18 components in 2% HNO₃ tr. HF

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

Internal Standards

Internal Standard #1

ICP-MS-200.8-IS-1 100 mL

5 components in 2% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Sc (Scandium)	100	45	
Y (Yttrium)	100	89	
In (Indium)	100	115	
Tb (Terbium)	100	159	
Bi (Bismuth)	100	209	

Internal Standard #2

ICP-MS-200.8-IS2-1 100 mL

1 component in 2% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Au (Gold)	100	197	

Tuning Standard

ICP-MS-200.8-TUN-1 100 mL

5 components in 2% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Be (Beryllium)	10	75	
Mg (Magnesium)	10	24	
Co (Cobalt)	10	59	
In (Indium)	10	115	
Pb (Lead)	10	208	

Calibration Standard #2

ICP-MS-200.8-CAL2-1 100 mL

2 components in 2% HNO₃ tr. HF

Element	µg/mL	Most Abundant	
		Isotope	
Ba (Barium)	10	138	
Ag (Silver)	10	67	

Calibration Standard #3

ICP-MS-200.8-CAL3-1 100 mL

1 component in 5% HNO₃

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

Method 6020 (Revision 0, Sept. 1991) Standards for Inductively Coupled Mass Spectrometry

Calibration Standard

ICP-MS-6020-CAL-1 100 mL

15 components in 2% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Al (Aluminum)	10	27	
Sb (Antimony)	10	121	
As (Arsenic)	10	75	
Ba (Barium)	10	138	
Be (Beryllium)	10	9	
Cd (Cadmium)	10	114	
Cr (Chromium)	10	52	
Co (Cobalt)	10	59	
Cu (Copper)	10	63	
Pb (Lead)	10	208	
Mn (Manganese)	10	55	
Ni (Nickel)	10	58	
Ag (Silver)	10	107	
Tl (Thallium)	10	205	
Zn (Zinc)	10	64	

Interference Check Standard #1

ICP-MS-6020-INT1-1 100 mL

12 components in 2% HNO₃

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

Internal Standard

ICP-MS-IS-MIX1-1 100 mL

7 components in 2% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Bi (Bismuth)	10	209	
Ho (Holmium)	10	165	
In (Indium)	10	115	
Li (Lithium-6)	10	6	
Sc (Scandium)	10	45	
Tb (Terbium)	10	159	
Y (Yttrium)	10	89	

Tuning Standard

ICP-MS-6020-TUN-1 100 mL

4 components in 2% HNO₃

Element	µg/mL	Most Abundant	
		Isotope	
Co (Cobalt)	10	59	
In (Indium)	10	115	
Li (Lithium)	10	7	
Tl (Thallium)	10	205	

Interference Check Standard #2

ICP-MS-6020-INT2-1 100 mL

9 components in 5% HNO₃ tr. HF

Element	µg/mL	Most Abundant	
		Isotope	
As (Arsenic)	2	75	
Cd (Cadmium)	2	114	
Cr (Chromium)	2	52	
Co (Cobalt)	2	59	
Cu (Copper)	2	63	
Mn (Manganese)	2	55	
Ni (Nickel)	2	58	
Ag (Silver)	2	107	
Zn (Zinc)	2	64	

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

ICP-MS-200.8-CAL1-1:44
ICP-MS-200.8-CAL1R-1:44
ICP-MS-200.8-CAL2-1:44
ICP-MS-200.8-CAL3-1:44
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