Table 3. Atomic Spectroscopy Detection Limits (micrograms/liter)

Elem	Flame AA	Hg/ Hydride	GFAA	ICP-OES	ICP-MS
Ag	1.5		0.005	0.6	0.002
Al	45		0.1	1	0.005[a]
As	150	0.03	0.05	2	0.0006[b]
Au	9		0.15	1	0.0009
B	1000		20	1	0.003[c]
Ba	15		0.35	0.03	0.00002[d]
Be	1.5		0.008	0.09	0.003
Bi	30	0.03	0.05	1	0.0006
Br					0.2
C					0.8[e]
Ca	1.5		0.01	0.05	0.0002[d]
Cd	0.8		0.002	0.1	0.00009[d]
Ce				1.5	0.0002
Cl					12
Co	9		0.15	0.2	0.0009
Cr	3		0.004	0.2	0.0002[d]
Cs	15				0.0003
Cu	1.5		0.014	0.4	0.0002[c]
Dy	50			0.5	0.0001[f]
Er	60			0.5	0.0001
Eu	30			0.2	0.00009
F					372
Fe	5		0.06	0.1	0.0003[d]
Ga	75			1.5	0.0002
Gd	1800			0.9	0.0008[g]
Ge	300			1	0.001[h]
Hf	300			0.5	0.0008
Hg	300	0.009	0.6	1	0.016[i]
Ho	60			0.4	0.00006
I					0.002
In	30			1	0.0007
Ir	900		3.0	1	0.001
K	3		0.005	1	0.0002[d]
La	3000			0.4	0.0009
Li	0.8		0.06	0.3	0.001[c]
Lu	1000			0.1	0.00005
Mg	0.15		0.004	0.04	0.0003[c]
Mn	1.5		0.005	0.1	0.00007[d]
Mo	45		0.03	0.5	0.001
Na	0.3		0.005	0.5	0.0003[c]
Nb	1500			1	0.0006
Nd	1500			2	0.0004
Ni	6		0.07	0.5	0.0004[c]
Os				6	
P	75000		130	4	0.1[a]
Pb	15		0.05	1	0.00004[d]
Pd	30		0.09	2	0.0005
Pr	7500			2	0.00009
Pt	60		2.0	1	0.002
Rd	3		0.03	5	0.0004
Re	750			0.5	0.0003
Rh	6			5	0.0002
Ru	100		1.0	1	0.0002
S				10	28[j]
Sb	45	0.15	0.05	2	0.0009
Sc	30			0.1	0.004
Se	100	0.03	0.05	4	0.0007[b]
Si	90		1.0	10	0.03[a]
Sm	3000			2	0.0002
Sn	150		0.1	2	0.0005[a]
Sr	3		0.025	0.05	0.00002[d]
Ta	1500			1	0.0005
Tb	900			2	0.00004
Te	30	0.03	0.1	2	0.0008
Th				2	0.0004
Ti	75		0.35	0.4	0.003[i]
Tl	15		0.1	2	0.0002
Tm	15			0.6	0.00006
U	1500			10	0.0001
V	60		0.1	0.5	0.0005
W	1500			1	0.005
Y	75			0.2	0.0002
Yb	8			0.1	0.0002[m]
Zn	1.5		0.02	0.2	0.0003[d]
Zr	450				0.0003

All detection limits are given in micrograms per liter and were determined using elemental standards in dilute aqueous solution. All detection limits are based on a 98% confidence level (3 standard deviations).

All atomic absorption detection limits were determined using instrumental parameters optimized for the individual element, including the use of System 2 electrodeless discharge lamps where available. Date shown were determined on an AAnalyst™ 800.

All ICP-OES (Optima 4300/5300) detection limits were obtained under simultaneous multielement conditions with the axial view of a dual-view plasma using a cyclonic spray chamber and a concentric nebulizer.

Cold-vapor mercury detection limits were determined with a FIAS-100 or FIAS-400 flow injection system with amalgamation accessory.

The detection limit without an amalgamation accessory is 0.2 µg/L with a hollow cathode lamp, 0.05 µg/L with a System 2 electrodeless discharge lamp. (The Hg detection limited with the dedicated FIMS-100 or FIMS-400 mercury analyzers is < 0.005 µg/L without an amalgamation accessory and < 0.0002 µg/L with an amalgamation accessory.)Hydride detection limits shown were determined using anMHS-15Mercury/Hydride system.

GFAA detection limits were determined on an AAnalyst 800 using 50 µL sample volumes, an integrated and full STPF conditions.

Graphite furnace detection limits can be further enhanced by the use of replications.

Unless otherwise noted, ICP-MS detection limits were determined using an ELAN 6100/9000 equipped with Ryton™ spray chamber, Type II Cross-Flow nebulizer and nickel cones. All detection limits were determined using 3-second integration times and a minimum of 8 measurements.

Letters following an IPC-MS detection limit value refer to the use of specialize conditions or a different model instrument as follows:

a Run on ELAN DRC in standard mode using Pt cones and quartz sample introduction system. **b** Run on ELAN DRC in DRC mode using Pt cones and quartz sample introduction system. **c** Run on ELAN DRC in standard mode in Class 100 Clean Room using Pt cones and quartz sample introduction system. **d** Run Run on ELAN DRC in DRC mode in Class 100 Clean Room using Pt cones and quartz sample introduction system. **e** Using C-13. **f** Using Dy-163. **g** Using Gd-157. **h** Using Ge-74. **i** Using Hg-202. **j** Using S-34. **k** Using Te-125. **l** Using Ti-49. **m** Using Yb-173.