



RM Sales IQM ESTL

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**INVENTORY OF TRACE ELEMENTS IN WATER**

**MATRIX REFERENCE MATERIALS**

\*denotes a measurand which was removed from the previous lot #  
\*denotes a new lot #, new RM or newly added measurand

Measurand	TM-07 lot 1123	TM-9.3 lot 0523	TM-23.5 lot 1122	TM-24.5 lot 0523	TM-26.5 lot 0523	TM-27.4 lot 1122
	Value in µg/L	Value in µg/L	Value in µg/L	Value in µg/L	Value in µg/L	Value in µg/L
Aluminum		33.3 ± 3.3	95.7 ± 9.1	33.0 ± 4.0	73.3 ± 6.2	
Antimony	2.21 ± 0.17	4.54 ± 0.39	3.44 ± 0.26	3.44 ± 0.32	2.91 ± 0.26	1.61 ± 0.15
Arsenic	10.5 ± 0.8	20.8 ± 2.0	8.05 ± 0.68	5.75 ± 0.67	9.05 ± 0.77	2.21 ± 0.19
Barium	28.4 ± 1.8	56.2 ± 3.4	14.0 ± 0.9	14.9 ± 1.1	26.7 ± 1.5	14.0 ± 0.9
Beryllium	3.08 ± 0.34	5.99 ± 0.55	2.12 ± 0.23	2.07 ± 0.22	3.49 ± 0.30	1.20 ± 0.14
Bismuth		1.39 ± 0.22			2.87 ± 0.41	0.890 ± 0.186
Boron		27.3 ± 4.0	17.4 ± 2.5	15.8 ± 2.4		15.8 ± 2.2
Cadmium	1.92 ± 0.13	4.97 ± 0.34	2.98 ± 0.24	3.90 ± 0.29	7.11 ± 0.45	1.06 ± 0.08
Chromium	1.99 ± 0.18	3.95 ± 0.35	7.11 ± 0.48	4.96 ± 0.36	12.3 ± 0.8	1.79 ± 0.17
Cobalt	0.98 ± 0.08	2.00 ± 0.15	7.37 ± 0.54	5.88 ± 0.36	8.13 ± 0.46	2.08 ± 0.17
Copper	15.8 ± 1.5	32.7 ± 2.3	7.68 ± 0.66	6.27 ± 0.52	14.1 ± 1.0	6.17 ± 0.61
Gallium	1.43 ± 0.13	2.81 ± 0.18	0.908 ± 0.060		5.45 ± 0.28	
Iron	56.2 ± 5.1	107 ± 9		16.0 ± 1.9		11.2 ± 1.7
Lead	4.03 ± 0.34	8.35 ± 0.73	2.95 ± 0.25	5.30 ± 0.52	10.1 ± 0.8	2.84 ± 0.24
Lithium		4.26 ± 0.49	9.96 ± 0.87	5.01 ± 0.39	5.02 ± 0.41	3.73 ± 0.39
Manganese	4.95 ± 0.42	9.94 ± 0.73	8.40 ± 0.61	8.46 ± 0.60	10.9 ± 0.8	2.29 ± 0.22
Molybdenum	6.3 ± 0.6	12.7 ± 1.0	4.16 ± 0.37	6.30 ± 0.53	7.92 ± 0.60	2.39 ± 0.33
Nickel	9.3 ± 0.7	18.7 ± 1.2	5.01 ± 0.44	4.92 ± 0.36	11.0 ± 0.7	2.45 ± 0.29
Rubidium	2.22 ± 0.14	4.42 ± 0.29	0.732 ± 0.061	3.67 ± 0.25	10.6 ± 0.5	0.776 ± 0.062
Selenium	7.9 ± 0.8	16.2 ± 1.4	4.96 ± 0.70	3.61 ± 0.43	5.62 ± 0.58	
Silver	1.9 ± 0.2			7.99 ± 0.54	6.87 ± 0.49	
Strontium	115 ± 9	115 ± 9	114 ± 7	115 ± 8	119 ± 9	115 ± 7
Thallium	1.01 ± 0.08	1.97 ± 0.16	4.08 ± 0.29	4.08 ± 0.35	5.41 ± 0.42	1.48 ± 0.12
Tin	1.43 ± 0.16	2.91 ± 0.25	2.83 ± 0.29	3.63 ± 0.39	5.88 ± 0.48	
Titanium	3.88 ± 0.34	8.08 ± 0.62	3.33 ± 0.37	7.22 ± 0.57	6.28 ± 0.51	1.97 ± 0.27
Tungsten			4.06 ± 0.56			
Uranium	0.95 ± 0.08	1.82 ± 0.13	5.01 ± 0.35	4.17 ± 0.27	7.32 ± 0.50	2.01 ± 0.15
Vanadium	1.60 ± 0.24	3.01 ± 0.28		7.14 ± 0.54	13.5 ± 0.9	2.27 ± 0.22
Zinc	28.5 ± 3.0	50.4 ± 5.3		9.90 ± 1.21		

Measurand	TMDA-52.5 lot 1123	TMDA-54.6 lot 1122	TMDA-62.3 lot 0523	TMDA-64.4 lot 0523	TMDA-70.3 lot 0523	TM-DWS.3 lot 1122
	Value in µg/L	Value in µg/L	Value in µg/L	Value in µg/L	Value in µg/L	Value in µg/L
Aluminum		389 ± 28	117 ± 9	288 ± 24	417 ± 35	56.7 ± 5.7
Antimony	16.4 ± 1.3	27.4 ± 2.0	59.9 ± 4.3	123 ± 10	23.2 ± 2.0	3.38 ± 0.34
Arsenic	25.1 ± 1.9	45.1 ± 3.3	57.2 ± 4.7	167 ± 16	48.2 ± 4.2	4.77 ± 0.43
Barium	138 ± 9	324 ± 20	115 ± 7	283 ± 17	316 ± 17	146 ± 9
Beryllium	16.9 ± 1.9	17.2 ± 1.4	54.3 ± 4.7	156 ± 16	16.4 ± 1.77	14.0 ± 1.3
Bismuth	10.2 ± 1.6		49.0 ± 6.4	111 ± 13	12.4 ± 1.6	13.7 ± 2.6
Boron	12.4 ± 1.9	58.8 ± 6.6			39.2 ± 5.2	79.7 ± 8.0
Cadmium	83.2 ± 5.3	156 ± 8	91.7 ± 4.9	256 ± 14	138 ± 7	4.81 ± 0.39
Chromium	156 ± 11	421 ± 25	90.6 ± 5.5	272 ± 20	388 ± 27	44.1 ± 2.7
Cobalt	124 ± 9	304 ± 20	92.0 ± 6.8	252 ± 19	280 ± 21	51.4 ± 3.5
Copper	179 ± 12	393 ± 29	87.0 ± 5.8	251 ± 16	388 ± 26	163 ± 10
Gallium	13.6 ± 1.1	12.5 ± 0.9	32.1 ± 1.4	49.0 ± 2.8		
Iron	334 ± 23	367 ± 22	113 ± 8	291 ± 21	367 ± 27	225 ± 16
Lead	332 ± 27	490 ± 32	93.9 ± 6.4	276 ± 21	437 ± 33	6.83 ± 0.50
Lithium		21.4 ± 2.0	57.3 ± 5.7	141 ± 11	22.3 ± 2.0	20.2 ± 1.8
Manganese	191 ± 12	274 ± 14	91.4 ± 5.9	288 ± 19	311 ± 21	47.3 ± 3.4
Molybdenum	196 ± 14	293 ± 21	98.3 ± 6.2	280 ± 21	261 ± 17	65.7 ± 4.3
Nickel	260 ± 20	323 ± 20	92.4 ± 6.1	245 ± 15	325 ± 21	82.9 ± 5.2
Rubidium	15.8 ± 0.9	14.1 ± 0.8	15.6 ± 0.8	28.9 ± 1.5	0.662 ± 0.084	0.457 ± 0.068
Selenium	22.4 ± 1.9	34.8 ± 3.1	52.9 ± 4.1	158 ± 13	28.4 ± 2.1	
Silver		12.9 ± 1.0			8.59 ± 0.65	9.55 ± 0.79
Strontium	272 ± 18	574 ± 34	145 ± 10	622 ± 44	446 ± 29	240 ± 16
Thallium	18.0 ± 1.1	28.1 ± 1.9	50.8 ± 3.3	144 ± 9	21.3 ± 1.4	8.44 ± 0.67
Tin	18.9 ± 1.3	45.3 ± 3.0	104 ± 7	280 ± 25		
Titanium	110 ± 8	32.8 ± 2.8	56.8 ± 3.5	121 ± 9		
Tungsten						
Uranium	21.5 ± 1.5	56.7 ± 3.5	54.0 ± 3.3	132 ± 9	57.6 ± 3.3	14.4 ± 0.9
Vanadium	135 ± 10	341 ± 23	112 ± 7	280 ± 20	313 ± 20	45.3 ± 2.9
Zinc	273 ± 23	539 ± 36	120 ± 10	328 ± 27	502 ± 40	390 ± 28

All values are in µg/L, unless otherwise specified. Values and pricing subject to changes.

