

CRMsales IQM ESTL

867 Lakeshore Road Burlington, ON

Canada, L7S 1A1

+1-905-336-4653 ventescrm-crmsales@ec.gc.ca

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-9.3	TM-15.3	TM-23.5	TM-26.5	TM-27.4	TM-35.2
	lot 0622	lot 1122	lot 1122	lot 0622	lot 1122	lot 0622
	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 ± 3.5	91.0 ± 8.5	95.7 ± 9.1	73.1 ± 6.0		47.6 ± 3.7
Antimony	4.55 ± 0.42	16.7 ± 1.4	3.44 ± 0.26	2.90 ± 0.24	1.61 ± 0.15	1.62 ± 0.12
Arsenic	20.8 ± 2.2	16.2 ± 1.2	8.05 ± 0.68	9.05 ± 0.74	2.21 ± 0.19	7.06 ± 0.61
Barium	56.2 ± 3.1	13.7 ± 0.9	14.0 ± 0.9	26.6 ± 1.5	14.0 ± 0.9	15.0 ± 0.9
Beryllium	6.00 ± 0.58	15.7 ± 1.3	2.12 ± 0.23		1.20 ± 0.14	2.57 ± 0.23
Bismuth				2.86 ± 0.45	0.890 ± 0.186	2.95 ± 0.44
Boron	27.2 ± 4.2	25.8 ± 3.4	17.4 ± 2.5		15.8 ± 2.2	15.2 ± 2.3
Cadmium	4.99 ± 0.36	13.1 ± 0.7	2.98 ± 0.24	7.12 ± 0.49	1.06 ± 0.08	8.28 ± 0.52
Chromium	3.96 ± 0.40	16.7 ± 1.0	7.11 ± 0.48	12.3 ± 0.9	1.79 ± 0.17	6.86 ± 0.53
Cobalt	2.00 ± 0.15	15.3 ± 1.0	7.37 ± 0.54	8.15 ± 0.45	2.08 ± 0.17	12.8 ± 0.7
Copper	32.7 ± 2.4	17.2 ± 1.4	7.68 ± 0.66	14.0 ± 1.1	6.17 ± 0.61	11.0 ± 1.0
Gallium			0.908 ± 0.060			
Iron	107 ± 8	26.6 ± 2.7			11.2 ± 1.7	17.0 ± 2.2
Lead	8.35 ± 0.73	11.6 ± 0.8	2.95 ± 0.25	10.1 ± 0.8	2.84 ± 0.24	14.3 ± 1.0
Lithium	4.24 ± 0.50	15.3 ± 1.6	9.96 ± 0.87		3.73 ± 0.39	3.81 ± 0.34
Manganese	9.91 ± 0.83	18.3 ± 1.2	8.40 ± 0.61	10.9 ± 0.8	2.29 ± 0.22	14.0 ± 1.1
Molybdenum	12.8 ± 1.0	14.7 ± 1.2	4.16 ± 0.37	7.88 ± 0.52	2.39 ± 0.33	6.82 ± 0.55
Nickel	18.8 ± 1.3	17.6 ± 1.3	5.01 ± 0.44	11.0 ± 0.7	2.45 ± 0.29	9.41 ± 0.70
Rubidium		0.778 ± 0.070	0.732 ± 0.061	10.6 ± 0.6	0.776 ± 0.062	
Selenium			4.96 ± 0.70	5.61 ± 0.58		4.92 ± 0.57
Silver		11.1 ± 0.9		6.87 ± 0.51		3.67 ± 0.27
Strontium	115 ± 10	114 ± 7	114 ± 7	119 ± 9	115 ± 7	139 ± 10
Thallium	1.98 ± 0.14	18.2 ± 1.3	4.08 ± 0.29	5.42 ± 0.41	1.48 ± 0.12	5.93 ± 0.41
Tin	2.91 ± 0.25	15.0 ± 1.2	2.83 ± 0.29	5.86 ± 0.47		3.39 ± 0.32
Titanium	8.13 ± 0.69	14.9 ± 1.3	3.33 ± 0.37	6.31 ± 0.52	1.97 ± 0.27	5.02 ± 0.51
Tungsten			4.06 ± 0.56			
Uranium	1.82 ± 0.14	15.4 ± 1.1	5.01 ± 0.35	7.34 ± 0.47	2.01 ± 0.15	5.72 ± 0.31
Vanadium	3.02 ± 0.34	14.2 ± 0.9		13.5 ± 0.9	2.27 ± 0.22	
Zinc						

Measurand	TMDA-52.5 lot 1122	TMDA-54.6 lot 1122	TMDA-62.3 lot 0622	TMDA-64.4 lot 0622	TMDA-70.3 lot 0622	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	303 ± 28	389 ± 28	117 ± 9	289 ± 26	418 ± 40	56.7 ± 5.7
Antimony	16.4 ± 1.4	27.4 ± 2.0	60.0 ± 4.2	123 ± 10		3.38 ± 0.34
Arsenic	25.1 ± 1.7	45.1 ± 3.3	57.2 ± 4.7	167 ± 16	48.4 ± 4.2	4.77 ± 0.43
Barium	138 ± 8	324 ± 20	115 ± 6	283 ± 17	317 ± 16	146 ± 9
Beryllium	16.8 ± 1.6	17.2 ± 1.4	54.4 ± 4.5		16.5 ± 1.8	14.0 ± 1.3
Bismuth	10.3 ± 1.3		48.7 ± 7.5		12.3 ± 1.8	13.7 ± 2.6
Boron	12.3 ± 1.7	58.8 ± 6.6		269 ± 36		79.7 ± 8.0
Cadmium	83.1 ± 4.6	156 ± 8	91.7 ± 4.4	256 ± 12		4.81 ± 0.39
Chromium	155 ± 10	421 ± 25	90.8 ± 5.7	274 ± 22	389 ± 30	44.1 ± 2.7
Cobalt	124 ± 9	304 ± 20	92.3 ± 6.6	252 ± 19	281 ± 20	51.4 ± 3.5
Copper	178 ± 10	393 ± 29	87.3 ± 6.2	251 ± 15	388 ± 24	163 ± 10
Gallium		12.5 ± 0.9				
Iron	333 ± 19	367 ± 22	113 ± 7	291 ± 23	367 ± 28	225 ± 16
Lead	331 ± 24	490 ± 32	94.1 ± 6.4	277 ± 20	438 ± 32	6.83 ± 0.50
Lithium	14.6 ± 1.3	21.4 ± 2.0	57.2 ± 5.6	140 ± 11	22.2 ± 2.0	20.2 ± 1.8
Manganese	190 ± 12	274 ± 14	91.4 ± 5.9	289 ± 21		47.3 ± 3.4
Molybdenum	197 ± 13	293 ± 21	98.6 ± 6.4	283 ± 19	263 ± 16	65.7 ± 4.3
Nickel	259 ± 18	323 ± 20	92.7 ± 5.7	246 ± 14	326 ± 22	82.9 ± 5.2
Rubidium	15.7 ± 0.8	14.1 ± 0.8	15.7 ± 0.8			0.457 ± 0.068
Selenium	22.3 ± 1.6	34.8 ± 3.1	53.0 ± 3.7	158 ± 11	28.5 ± 1.8	
Silver		12.9 ± 1.0				9.55 ± 0.79
Strontium	270 ± 15	574 ± 34	146 ± 11	625 ± 46	447 ± 30	240 ± 16
Thallium	18.0 ± 1.2	28.1 ± 1.9	50.8 ± 3.2	144 ± 9	21.5 ± 1.4	8.44 ± 0.67
Tin	19.0 ± 1.3	45.3 ± 3.0	105 ± 7	281 ± 24		
Titanium	110 ± 7	32.8 ± 2.8	57.1 ± 3.5	122 ± 8		
Tungsten						
Uranium	21.5 ± 1.4	56.7 ± 3.5	54.1 ± 3.3	132 ± 8	57.8 ± 3.2	14.4 ± 0.9
Vanadium	135 ± 9	341 ± 23	111.9 ± 7.0	282 ± 22	315 ± 22	45.3 ± 2.9
Zinc	272 ± 21	539 ± 36		329 ± 25	503 ± 34	390 ± 28

All values are in $\mu\text{g/L}$, unless otherwise specified.



CRMSales IQM ESTL
867 Lakeshore Road
Burlington, ON L7S 1A1
Canada
Tel +1-905-336-4653
ec.CRMSales.ec@canada.ca

INVENTORY OF MAJOR IONS AND NUTRIENTS 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.			
	BATTLE-19 River Water lot 1122	DWNSVW-15 Rain Water lot 1122	ION-96.5 Rain Water lot 0522	LETH-13 Drinking Water lot 1122	LON-18 Lake Water lot 1122
	Value in mg/L	Value in mg/L	Value in mg/L	Value in mg/L	Value in mg/L
Acidity to pH 8.3					
Alkalinity, Gran (as CaCO ₃)		0.730 ± 0.261			
Alkalinity, Total (as CaCO ₃)			221 ± 23	127 ± 6	94.0 ± 4.7
Aluminum					
Ammonia (as N)		0.188 ± 0.014		0.311 ± 0.046	
Boron				0.0313 ± 0.0044	
Calcium	30.6 ± 2.0	0.317 ± 0.043	95.2 ± 12.3	41.7 ± 3.1	33.7 ± 2.7
Chloride	16.8 ± 0.7	0.211 ± 0.030	78.2 ± 3.8	20.0 ± 1.0	23.4 ± 0.9
Colour (Hazen Units)	10.8 ± 2.8		17.9 ± 6.3		
Conductivity (µS/cm, 25°C)	575 ± 19	5.99 ± 0.77	819 ± 25	388 ± 14	309 ± 12
Dissolved Inorganic Carbon (DIC)				30.1 ± 3.8	
Dissolved Organic Carbon (DOC)	5.49 ± 0.71		4.89 ± 1.32	1.89 ± 0.37	1.88 ± 0.33
Fluoride			0.175 ± 0.141	0.767 ± 0.074	
Magnesium	17.1 ± 1.6	0.0901 ± 0.0095	23.3 ± 3.1	15.6 ± 1.2	8.90 ± 0.81
Nitrate + Nitrite (as N)		0.163 ± 0.014	3.13 ± 0.31		0.326 ± 0.036
pH (units, 25°C)	8.35 ± 0.20	6.04 ± 0.26			8.11 ± 0.20
Potassium	4.23 ± 0.38	0.0638 ± 0.01526	3.09 ± 0.25	1.63 ± 0.15	1.60 ± 0.15
Silica (as Si)					
Silicates (as SiO ₂)	4.16 ± 0.31			2.64 ± 0.18	0.758 ± 0.063
Sodium	70.7 ± 4.5	0.154 ± 0.019	45.8 ± 3.7	13.2 ± 0.9	14.0 ± 0.8
Sulfate (as SO ₄)	84.4 ± 3.6		90.0 ± 5.1	41.2 ± 2.1	23.9 ± 1.0
Total Kjeldahl Nitrogen (TKN)				0.431 ± 0.090	
Total Nitrogen	0.361 ± 0.080	0.396 ± 0.052	3.60 ± 0.77	0.491 ± 0.062	0.463 ± 0.064
Hardness, Total (as CaCO ₃)	147 ± 10		365 ± 172	168 ± 14	121 ± 9

	MAURI-17 River Water lot 0922	MISSISSIPPI-14 River Water lot 0622	ONTARIO-12 Lake Water lot 0622	PERADE-17 River Water lot 0622	RAIN-12 Rain Water lot 0622
	Value in mg/L	Value in mg/L	Value in mg/L	Value in mg/L	Value in mg/L
Acidity to pH 8.3					
Alkalinity, Gran (as CaCO ₃)				9.61 ± 0.68	
Alkalinity, Total (as CaCO ₃)	6.14 ± 0.62	115 ± 7	93.0 ± 5.1		
Aluminum					
Ammonia (as N)					0.09791 ± 0.01051
Boron			0.0252 ± 0.00685		
Calcium	2.25 ± 0.19	39.1 ± 3.1	34.2 ± 2.5	3.79 ± 0.29	0.690 ± 0.053
Chloride	1.02 ± 0.08	15.9 ± 0.8	22.8 ± 1.1	1.44 ± 0.09	0.189 ± 0.029
Colour (Hazen Units)		38.4 ± 8.4			
Conductivity (µS/cm, 25°C)	24.2 ± 1.7	330 ± 12	308 ± 11	33.5 ± 2.4	17.1 ± 2.0
Dissolved Inorganic Carbon (DIC)		26.9 ± 3.7	22.0 ± 3.2		
Dissolved Organic Carbon (DOC)	5.40 ± 0.580		1.88 ± 0.36	4.92 ± 0.66	
Fluoride		0.118 ± 0.027	0.114 ± 0.023		
Magnesium	0.575 ± 0.040	12.6 ± 1.1	8.76 ± 0.64	0.633 ± 0.044	0.261 ± 0.019
Nitrate + Nitrite (as N)		2.94 ± 0.24		0.168 ± 0.01499	0.314 ± 0.021
pH (units, 25°C)	6.88 ± 0.29	8.08 ± 0.27	8.08 ± 0.24	7.08 ± 0.28	4.73 ± 0.14
Potassium	0.367 ± 0.032	2.49 ± 0.20	1.59 ± 0.11	0.418 ± 0.039	
Silica (as Si)	1.91 ± 0.15			2.54 ± 0.20	0.02327 ± 0.01374
Silicates (as SiO ₂)		6.20 ± 0.46	0.662 ± 0.070		
Sodium	1.55 ± 0.11	7.81 ± 0.62	13.4 ± 1.0	1.79 ± 0.13	0.076 ± 0.014
Sulfate (as SO ₄)	2.02 ± 0.14	19.4 ± 1.0	25.0 ± 1.2	2.43 ± 0.16	2.90 ± 0.21
Total Kjeldahl Nitrogen (TKN)			0.168 ± 0.085		
Total Nitrogen		3.36 ± 0.37	0.507 ± 0.072	0.317 ± 0.055	0.423 ± 0.043
Hardness, Total (as CaCO ₃)		150 ± 11	121 ± 8		

All values are in mg/L, unless otherwise specified.