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INVENTORY OF REFERENCE SEDIMENTS FOR TRACE ELEMENTS MATRIX REFERENCE MATERIALS

	HR-1 Humber River Sediment		SUD-1 Lake Ramsey Sediment		TH-2 Toronto Harbour Sediment		WQB-4 Lake Ontario Sediment		WQB-5 Lake Ontario Sediment	
	Lot 0120		Lot 0621		Lot 0621		Lot 0120		Lot 0621	
	Value in µg/g		Value in µg/g		Value in µg/g		Value in µg/g		Value in µg/g	
Aluminum %	1.40	± 0.55					1.56	± 0.56	2.06	± 0.73
Antimony	1.07	± 0.89							1.07	± 0.95
Arsenic	5.59	± 1.60	31.9	± 5.1	7.90	± 2.04	16.0	± 3.6	17.8	± 3.9
Barium	121	± 25	118	± 19			129	± 25	178	± 31
Beryllium	0.654	± 0.302	0.516	± 0.123	0.974	± 0.326	0.893	± 0.372	0.941	± 0.273
Bismuth							1.81	± 0.42		
Boron										
Cadmium	3.64	± 0.67	1.62	± 0.29	5.40	± 0.94	3.61	± 0.72	2.31	± 0.42
Calcium %	5.96	± 1.14			6.55	± 1.23	4.29	± 0.73	2.32	± 0.42
Chromium	101	± 20	55.1	± 9.3	97.5	± 19.9	79.8	± 16.2		
Cobalt	9.32	± 1.79	38.8	± 6.5	11.7	± 2.7	12.3	± 2.1		
Copper	73.0	± 14.2	547	± 65	116	± 21	74.8	± 12.4	76.8	± 13.9
Gallium										
Iron %	2.40	± 0.63	2.64	± 0.50	2.94	± 0.53	5.01	± 1.06	3.79	± 0.81
Lead	131	± 17	48.1	± 6.2			229	± 30	103	± 14
Lithium							25.1	± 4.8		
Magnesium %	1.09	± 0.22	0.732	± 0.128	1.16	± 0.24	1.19	± 0.17	1.12	± 0.25
Manganese	410	± 80	492	± 65	499	± 89	1123	± 173		
Mercury	0.340	± 0.102	0.118	± 0.042	0.611	± 0.135	2.78	± 0.62	2.80	± 0.64
Molybdenum	1.03	± 0.41	0.635	± 0.274	0.664	± 0.326	1.63	± 0.67	1.13	± 0.42
Nickel	32.9	± 5.7					48.6	± 8.8	61.5	± 10.8
Potassium %	0.222	± 0.14	0.179	± 0.059						
Selenium	0.726	± 0.670	2.71	± 0.63	0.890	± 0.585	1.40	± 0.58	1.26	± 0.65
Silicon %										
Silver	4.76	± 1.16					1.47	± 0.53	1.18	± 0.26
Sodium			324	± 81	318	± 102	224	± 73	251	± 76
Strontium	102	± 21			120	± 18	69.8	± 12.4	44.1	± 10.1
Thallium	0.235	± 0.104			0.316	± 0.102	0.739	± 0.298	0.505	± 0.149
Tin	6.88	± 3.13			11.9	± 3.4	18.7	± 7.7	6.36	± 1.90
Titanium										
Tungsten										
Uranium					0.805	± 0.155	1.03	± 0.36		
Vanadium	31.0	± 14.3			38.8	± 13.5	37.3	± 15.7		
Zinc	1060	± 175	741	± 120	865	± 179	1321	± 211	1743	± 252

All values are in µg/g unless indicated as %.



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INVENTORY OF TRACE ELEMENTS IN WATER MATRIX REFERENCE MATERIALS

	TM-15.3 lot 0621	TM-23.5 lot 0621	TM-25.6 lot 0820	TM-26.5 lot 0820	TM-27.4 lot 0621	TM-35.2 lot 0820
	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	90.5 ± 8.4	95.3 ± 8.8	29.5 ± 3.0	72.9 ± 5.6	90.5 ± 9.0	47.6 ± 3.1
Antimony		3.43 ± 0.25	22.7 ± 3.3	2.88 ± 0.21	1.61 ± 0.14	1.61 ± 0.10
Arsenic	16.2 ± 1.2	8.04 ± 0.68	27.2 ± 2.2	9.00 ± 0.64	2.21 ± 0.19	7.02 ± 0.55
Barium	13.7 ± 0.9	14.0 ± 0.9		26.7 ± 1.5	14.0 ± 0.8	15.1 ± 0.9
Beryllium	15.7 ± 1.2	2.12 ± 0.22	25.9 ± 2.5	3.47 ± 0.28	1.19 ± 0.13	2.56 ± 0.20
Bismuth			19.8 ± 4.1	2.86 ± 0.46	0.891 ± 0.198	2.96 ± 0.44
Boron		17.3 ± 2.6	39.2 ± 4.5	45.2 ± 6.4	15.7 ± 2.1	15.1 ± 2.3
Cadmium	13.1 ± 0.7	2.98 ± 0.24	23.4 ± 1.7	7.13 ± 0.42	1.06 ± 0.08	8.30 ± 0.48
Chromium	16.8 ± 0.9	7.11 ± 0.48	23.8 ± 1.8	12.3 ± 0.8	1.79 ± 0.17	6.86 ± 0.50
Cobalt	15.4 ± 1.0	7.39 ± 0.54	27.4 ± 2.0	8.15 ± 0.40	2.08 ± 0.17	12.8 ± 0.6
Copper	17.2 ± 1.3		25.9 ± 2.1	14.1 ± 1.0	6.15 ± 0.59	11.0 ± 0.9
Gallium	0.154 ± 0.035	0.905 ± 0.053				
Iron	26.5 ± 2.6	16.0 ± 2.2	31.1 ± 3.0	21.1 ± 1.9	11.1 ± 1.6	17.0 ± 1.9
Lead	11.6 ± 0.8	2.95 ± 0.26	26.4 ± 2.2	10.1 ± 0.7	2.84 ± 0.24	14.3 ± 1.0
Lithium	15.3 ± 1.4	9.97 ± 0.84	23.9 ± 2.2	5.00 ± 0.33	3.71 ± 0.34	3.80 ± 0.30
Manganese	18.3 ± 1.2	8.41 ± 0.59	25.3 ± 1.9	10.9 ± 0.8	2.29 ± 0.23	14.0 ± 1.0
Molybdenum	14.7 ± 1.2	4.17 ± 0.39	27.2 ± 2.4	7.87 ± 0.48	2.38 ± 0.31	6.88 ± 0.55
Nickel	17.6 ± 1.3	5.01 ± 0.44	16.0 ± 1.3	11.0 ± 0.7	2.45 ± 0.30	9.43 ± 0.63
Rubidium	0.780 ± 0.074	0.731 ± 0.061	18.9 ± 1.2		0.775 ± 0.061	
Selenium		5.00 ± 0.74	29.3 ± 3.7	5.59 ± 0.54	1.81 ± 0.23	4.91 ± 0.51
Silver	11.2 ± 0.9					3.68 ± 0.25
Strontium	114 ± 7	114 ± 7	76.0 ± 4.5	119 ± 8	115 ± 7	139 ± 9
Thallium	18.2 ± 1.5	4.08 ± 0.31	30.8 ± 2.6	5.40 ± 0.34	1.48 ± 0.13	5.93 ± 0.38
Tin	15.0 ± 1.2	2.84 ± 0.30		5.84 ± 0.48		3.40 ± 0.29
Titanium	14.9 ± 1.2	3.33 ± 0.38	25.2 ± 1.8	6.30 ± 0.46	1.97 ± 0.27	5.05 ± 0.40
Tungsten		4.08 ± 0.55				
Uranium	15.5 ± 1.0	5.03 ± 0.36	26.8 ± 1.9	7.36 ± 0.41	2.01 ± 0.15	5.73 ± 0.29
Vanadium	14.2 ± 0.9			13.5 ± 0.8	2.28 ± 0.22	10.5 ± 0.7
Zinc						29.3 ± 2.0

	TMDA-51.5 lot 0621	TMDA-54.6 lot 0621	TMDA-61.3 lot 0820	TMDA-62.3 lot 0820	TM-DWS.3 lot 0820
	Value in µg/L	Value in µg/L	Value in µg/L	Value in µg/L	Value in µg/L
Aluminum	105 ± 9	389 ± 28	58.6 ± 6.3	116 ± 9	56.8 ± 6.1
Antimony	15.2 ± 1.3			59.5 ± 3.6	3.37 ± 0.35
Arsenic	16.7 ± 1.4	45.0 ± 3.1	35.0 ± 3.4	57.0 ± 3.8	4.77 ± 0.45
Barium	72.6 ± 4.1	324 ± 19		115 ± 6	146 ± 9
Beryllium	9.99 ± 0.92	17.2 ± 1.4	36.9 ± 3.4	54.4 ± 3.8	14.1 ± 1.3
Bismuth	9.79 ± 2.13		19.9 ± 4.3		13.4 ± 3.6
Boron	46.9 ± 5.6	58.2 ± 6.8	48.4 ± 6.5	112 ± 13	79.3 ± 8.8
Cadmium	25.7 ± 1.7	156 ± 8	59.3 ± 4.2	91.6 ± 4.2	4.81 ± 0.39
Chromium	65.1 ± 4.3	421 ± 22		90.8 ± 5.4	44.1 ± 2.9
Cobalt	68.7 ± 4.7	305 ± 20	63.7 ± 4.3	92.2 ± 6.1	51.5 ± 3.4
Copper	77.4 ± 5.4	393 ± 26	62.0 ± 5.0	86.8 ± 6.5	163 ± 10
Gallium	9.83 ± 0.70	12.5 ± 0.7	8.40 ± 0.50		
Iron	108 ± 10	367 ± 23	79.8 ± 6.7	113 ± 7	224 ± 17
Lead	63.7 ± 5.6	490 ± 30	56.0 ± 4.6	93.9 ± 5.6	6.84 ± 0.59
Lithium	19.4 ± 1.9	21.4 ± 1.8	34.7 ± 3.5	57.0 ± 5.4	20.1 ± 1.6
Manganese	78.7 ± 4.4	274 ± 13	76.3 ± 5.0	90.9 ± 5.5	47.4 ± 3.2
Molybdenum	55.0 ± 4.5	292 ± 20		98.4 ± 6.3	65.7 ± 4.7
Nickel	65.3 ± 4.3	323 ± 19	56.9 ± 4.5	92.1 ± 5.8	82.9 ± 5.3
Rubidium	15.3 ± 1.0	14.1 ± 0.7			0.454 ± 0.074
Selenium	14.3 ± 1.9		40.3 ± 4.5	52.9 ± 3.7	9.14 ± 1.25
Silver	12.1 ± 1.1	12.9 ± 1.1			9.44 ± 0.99
Strontium	118 ± 7	573 ± 31	114 ± 7		239 ± 15
Thallium	20.3 ± 1.8	28.2 ± 1.9	37.1 ± 3.2	50.7 ± 2.8	8.46 ± 0.76
Tin	16.4 ± 1.4	45.3 ± 3.1		105 ± 8	
Titanium	14.1 ± 1.0	32.8 ± 2.6	37.3 ± 2.9	57.2 ± 2.8	
Tungsten					
Uranium	28.7 ± 2.3	56.8 ± 3.1	36.3 ± 2.5	54.1 ± 3.3	14.4 ± 1.0
Vanadium	46.5 ± 3.5	340 ± 19		112 ± 7	45.2 ± 3.0
Zinc		540 ± 35	72.5 ± 6.6	120 ± 9	390 ± 31

All values are in µg/L , unless otherwise specified. PRICE: \$175.00 CAD/ 250mL+ shipping, duties, and applicable taxes. Values and pricing subject to changes.



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INVENTORY OF MAJOR IONS AND NUTRIENTS IN WATER MATRIX REFERENCE MATERIALS

	BIGMOOSE-14		BURTAP-14		DWNSVW-15		KEJIM-15		LETH-13	
	Lake Water		Drinking Water		Rain Water		Lake Water		Drinking Water	
	lot 0621		lot 0820		lot 0621		lot 0820		lot 0621	
	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)										
Alkalinity, Total (as CaCO ₃)			88.3	± 5.0					127	± 6
Aluminum	0.157	± 0.016					0.127	± 0.014		
Ammonia (as N)	0.0496	± 0.0080							0.310	± 0.046
Boron			0.0240	± 0.0060					0.0309	± 0.0040
Calcium	1.42	± 0.11	34.8	±	0.318	± 0.044	0.488	± 0.046	41.8	± 3.2
Chloride	0.352	± 0.049	26.5	± 1.5	0.212	± 0.032	3.79	± 0.18	20.0	± 1.0
Colour (Hazen Units)	22.2	± 5.6					70.9	± 13.3		
Conductivity (µS/cm, 25°C)			318	± 12	6.02	± 0.68	21.5	± 1.1	388	± 13
Dissolved Inorganic Carbon (DIC)			20.8	± 1.9					30.0	± 4.1
Dissolved Organic Carbon (DOC)	4.22	± 0.51	1.59	± 0.43					1.89	± 0.35
Fluoride			0.617	± 0.056					0.766	± 0.074
Magnesium	0.224	± 0.016	8.75	± 0.61	0.0903	± 0.0096	0.294	± 0.024	15.6	± 1.2
Nitrate + Nitrite (as N)	0.267	± 0.019	0.384	± 0.044	0.163	± 0.015				
pH (units, 25°C)	6.13	± 0.23	8.07	± 0.21	6.05	± 0.25				
Potassium	0.302	± 0.031	1.63	± 0.14	0.0637	± 0.0164	0.252	± 0.026	1.63	± 0.13
Silica (as Si)	1.57	± 0.13					0.409	± 0.056		
Silicates (as SiO ₂)			1.12	± 0.11					2.64	± 0.16
Sodium	0.669	± 0.063	14.6	± 1.2	0.154	± 0.019	2.66	± 0.23	13.2	± 0.8
Sulfate (as SO ₄)	2.47	± 0.15	27.0	± 1.7			1.13	± 0.08	41.2	± 2.1
Total Kjeldahl Nitrogen (TKN)									0.428	± 0.091
Total Nitrogen	0.443	± 0.048	0.491	± 0.074	0.393	± 0.051	0.213	± 0.044	0.492	± 0.060
Hardness, Total (as CaCO ₃)			122	± 10					168	± 14

	MAURI-17		MISSISSIPPI-14		ONTARIO-12		PERADE-17		RAIN-12	
	River Water		River Water		Lake Water		River Water		Rain Water	
	lot 0820		lot 0820		lot 0820		lot 0820		lot 0820	
	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)	6.16	± 0.57					9.63	± 0.59		
Alkalinity, Total (as CaCO ₃)			115	± 6	92.9	± 5.0				
Aluminum									0.098	± 0.010
Ammonia (as N)										
Boron			0.0200	± 0.0020	0.0250	± 0.0060				
Calcium	2.25	± 0.19	39.1	± 3.3	34.2	± 2.6	3.80	± 0.31	0.688	± 0.054
Chloride	1.02	± 0.08	15.9	± 0.8	22.8	± 1.1	1.44	± 0.09	0.189	± 0.030
Colour (Hazen Units)			38.8	± 8.4						
Conductivity (µS/cm, 25°C)	24.2	± 1.7	331	± 11	308	± 11	33.6	± 2.5	17.1	± 2.0
Dissolved Inorganic Carbon (DIC)			26.8	± 3.9	22.0	± 3.3				
Dissolved Organic Carbon (DOC)	5.37	± 0.51			1.89	± 0.34	4.94	± 0.64		
Fluoride			0.117	± 0.028	0.114	± 0.024				
Magnesium	0.574	± 0.044	12.6	± 1.0	8.76	± 0.65	0.632	± 0.048	0.260	± 0.020
Nitrate + Nitrite (as N)			2.94	± 0.23			0.169	± 0.014	0.315	± 0.020
pH (units, 25°C)	6.88	± 0.28			8.08	± 0.24	7.09	± 0.27	4.73	± 0.14
Potassium	0.365	± 0.034	2.49	± 0.20	1.59	± 0.11	0.416	± 0.040		
Silica (as Si)	1.91	± 0.15					2.55	± 0.20	0.0230	± 0.0140
Silicates (as SiO ₂)			6.18	± 0.43	0.661	± 0.068				
Sodium	1.55	± 0.11	7.79	± 0.64	13.4	± 1.1	1.79	± 0.13	0.0760	± 0.0140
Sulfate (as SO ₄)	2.02	± 0.13	19.5	± 1.1	25.0	± 1.2	2.43	± 0.17	2.90	± 0.21
Total Kjeldahl Nitrogen (TKN)										
Total Nitrogen	0.223	± 0.042	3.34	± 0.36	0.505	± 0.072	0.317	± 0.056	0.422	± 0.042
Hardness, Total (as CaCO ₃)			149	± 12	122	± 8				

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

