

# ENVIRONMENTAL MATRIX REFERENCE MATERIAL

## TM-9.3, lot 0523

### Product Information Sheet

Trace Elements Sample



Updated: 02 May 2023

Trace element matrix Reference Materials (RMs) are made with filtered and diluted Lake Ontario water and are preserved with 0.2% nitric acid. This fortified bulk RM has concentrations in the low range.

This Reference Material is intended for the verification or development of analytical methods for environmental analysis. It is not intended for use as a calibration standard.

Measurand	Assigned Value in µg/L*		C.I.	N
Aluminum	33.3	±	3.3	70
Antimony	4.54	±	0.39	66
Arsenic	20.8	±	2.0	79
Barium	56.2	±	3.4	76
Beryllium	5.99	±	0.55	67
Bismuth	1.39	±	0.22	39
Boron	27.3	±	4.0	59
Cadmium	4.97	±	0.34	73
Chromium	3.95	±	0.35	74
Cobalt	2.00	±	0.15	72
Copper	32.7	±	2.3	80
Gallium	2.81	±	0.18	31
Iron	107	±	9	72
Lead	8.35	±	0.73	76
Lithium	4.26	±	0.49	52
Manganese	9.94	±	0.73	74
Molybdenum	12.7	±	1.0	72
Nickel	18.7	±	1.2	76
Rubidium	4.42	±	0.29	40
Selenium	16.2	±	1.4	67
Strontium	115	±	9	70
Thallium	1.97	±	0.16	63
Tin	2.91	±	0.25	55
Titanium	8.08	±	0.62	58
Uranium	1.82	±	0.13	61
Vanadium	3.01	±	0.28	68
Zinc	50.4	±	5.3	80

\*Unless otherwise indicated

Assigned values are the robust means calculated using Algorithm A (ISO/IEC 13528). Confidence interval (C.I.) represents +/- 2 times the calculated robust standard deviation (R.STD) of all reported laboratory values, calculated by Algorithm A (ISO/IEC 13528).



### Traceability

The stated values are derived from analysis of the inter-laboratory consensus data from the accredited Environment and Climate Change Canada Proficiency Testing studies. (A2LA scope 2867.01)

### Methods

Report details of measurement methods used for specific parameters are available upon request.

### Storage and Handling

RMs should be stored refrigerated, well sealed and in the dark. Care should be taken when subsampling to avoid contamination of the sample bottle. An aliquot should be removed as necessary and any remaining aliquot sample should be put to waste as appropriate. We strongly recommend that the RM be tightly capped and refrigerated immediately after use.

### Expiry Date

Please note that expiry dates of **2 year** from the date of shipping are indicative of sample stability, sample transport, handling, and storage. Expiry dates are indicated directly on the sample bottle label. Environment and Climate Change Canada is not liable for samples beyond the stated expiry on the bottle label.

### Disclaimer, Liability & Warranty

Environment and Climate Change Canada warrants that the materials conform to the stated values for the duration of the sample validity period. In the event of a breach of this warranty, Environment and Climate Change Canada will only be liable for a replacement sample, an equivalent substitute, or the invoice price of the RM during the period of sample validity. In no event will Environment and Climate Change Canada be liable for direct, indirect, special, incidental or consequential damages arising from the use of or inability to use the material or documentation, or for the loss of revenue or profit, even if advised of the possibility of such damages. Environment and Climate Change Canada's liability does not extend to third party purchasers.

### Further Information

Additional information is available on request. Analytical results, any comments or suggestions are welcome. Difficulties or discrepancies arising with the reference materials should be communicated immediately.

### Quality Manager

Sarah Pomfret  
ECCC RM Programs Signing Officer  
E-mail: sarah.pomfret@ec.gc.ca

### Customer Service

CRM Sales  
Information and Quality Management Group  
Environmental Science & Technology  
Laboratories Division  
Water Science & Technology Directorate  
Environment and Climate Change Canada  
867 Lakeshore Road  
Burlington, ON  
L7S 1A1  
CANADA  
Tel: +1 289-816-2196  
Fax: +1 905-336-8914  
E-mail: ventescrm-crmsales@ec.gc.ca

