

ENVIRONMENTAL MATRIX REFERENCE MATERIAL

WQB-5, lot 1122

Product Information Sheet

Trace Elements in Sediment Sample



Updated: 09 November 2022

WQB-5 was collected from Lake Ontario. This is a naturally contaminated sediment in the low range, which has been freeze dried and homogenized. The bulk sample is stored at room temperature in a dark room. Total concentration of trace elements has been provided below.

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 $\mu\text{g/g}$ *		C.I.	N
Antimony	1.09	\pm	0.90	42
Arsenic	17.9	\pm	3.8	72
Barium	179	\pm	30	66
Cadmium	2.31	\pm	0.39	64
Calcium %	2.31	\pm	0.41	60
Iron %	3.79	\pm	0.78	51
Lead	103	\pm	14	70
Magnesium %	1.12	\pm	0.25	60
Manganese	1408	\pm	198	53
Mercury	2.80	\pm	0.57	52
Molybdenum	1.14	\pm	0.39	44
Nickel	61.8	\pm	10.1	65
Selenium	1.30	\pm	0.69	47
Silver	1.19	\pm	0.23	54
Sodium	252	\pm	86	45
Strontium	44.4	\pm	9.9	53
Thallium	0.507	\pm	0.162	37
Tin	6.29	\pm	1.99	40
Uranium	0.938	\pm	0.255	31
Vanadium	40.6	\pm	13.7	53

*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

For comparable recoveries during data collection in the Environment and Climate Change Canada Proficiency Testing Program, we suggested that all participants use the same digestion method. Aqua Regia 3:1 HCl: HNO₃ was the most popular digestion method. We recommend using this method with a minimum sample size of 0.5g. Several methodologies including inductively coupled plasma mass spectrometry or atomic emission spectrometry, atomic absorption, microwave digestion and open vessel digestion were also used to produce data.

Storage and Handling

RMs should be stored at room temperature. Care should be taken when subsampling to avoid contamination of the sample bottle. A subsample should be removed as necessary and any remaining subsample should be put to waste as appropriate. We strongly recommend that the RM be tightly capped immediately after use.

Expiry Date

Please note that expiry dates of **5 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.

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