



WEPAL-QUASIMEME

Certificate of Analysis



Metals in seawater

REFERENCE MATERIAL

AQ3 sample 204

2026-Aug-11



Certificate of Analysis AQ3 204

General Information

In this report an overview is given of analytical data for this sample collected in our proficiency testing program. The consensus values are calculated using a robust statistical model. With this NDA model, the mean and standard deviation are calculated using all reported data when at least 4 results are left after removal of reported 'lower than' (<) and 0 (= zero) values. No outliers are removed.

This report is divided into two sections: Consensus Values and Indicative Values. The division is made on the reliability of the data. Consensus Values are based on at least 8 results and a maximum relative uncertainty of 6.25%. Indicative Values are based on a maximum relative uncertainty of 35% and a minimum of 4 and maximum of 7 results, or a relative uncertainty greater than 6.25% when there are at least 8 results.

For each measurand, the following parameters are given: mean, standard deviation, coefficient of variation, number of results, median, MAD (Median of Absolute Deviation), the uncertainty of the mean (consensus or indicative) value and the relative uncertainty.

Please note: Most WEPAL-QUASIMEME reference materials are found to be stable over the long term (>10 years) for most measurand/matrix combinations. There are a few exceptions known to us as being less stable over the long term. These are organotins in sediment (MS6), ASP in shellfish (BT7), some PAHs and PCBs in sediment (SETOC) and N-NH₄ (as N) & N-NO₃ (as N) in clay soils (ISE).

Sample information

QUASIMEME reference materials cover a range of natural SeaWater species from contaminated waters from the North Sea and/or Mediterranean.

This AQ3 sample 204 of Low salinity seawater spiked with metals (high) from North Sea, the Netherlands is prepared for the QUASIMEME proficiency programs. The results on which the values in this report are based were taken from the rounds given in the following table.

Year.Round	Program	Sample Round Id
2026.1	AQ3	QTM394SW



Consensus Values AQ3

Method: Metals - AQ3

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Copper	µg/l	379	19.6	5.2	15	380	10.4	6.32	1.67
Cadmium	µg/l	23.0	1.66	7.2	15	23.0	0.869	0.535	2.32
Lead	µg/l	117	16.4	14.0	14	118	9.15	5.49	4.67
Cobalt	µg/l	97.0	5.19	5.3	9	98.0	2.80	2.16	2.23
Iron	µg/l	2699	135	5.0	8	2692	88.1	59.6	2.21
Manganese	µg/l	232	7.72	3.3	11	232	6.80	2.91	1.26
Arsenic	µg/l	145	17.1	11.8	12	146	7.00	6.16	4.24
Chromium	µg/l	331	20.1	6.1	13	328	13.0	6.97	2.11
Nickel	µg/l	617	39.2	6.3	14	618	22.8	13.1	2.12
Zinc	µg/l	521	50.6	9.7	13	520	34.0	17.5	3.36
Vanadium	µg/l	442	24.5	5.5	10	440	12.0	9.69	2.19
Tin	µg/l	428	22.9	5.4	10	428	16.5	9.07	2.12
Magnesium	mg/l	441	20.9	4.7	8	439	10.5	9.26	2.10
Strontium	mg/l	4.37	0.161	3.7	8	4.39	0.115	0.071	1.63



Indicative Values AQ3

Method: Metals - AQ3

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Silver	µg/l	17.1	0.851	5.0	7	17.0	0.500	0.402	2.35
Boron	µg/l	3973	213	5.4	7	3910	158	101	2.54
Thallium	µg/l	45.6	4.23	9.3	5	46.0	2.40	2.36	5.19
Uranium	µg/l	22.4	1.62	7.2	6	22.5	1.29	0.827	3.69