

QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis



Metals in seawater

REFERENCE MATERIAL

AQ3 sample 189





Certificate of Analysis AQ3 189

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 determinand 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.

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 189 of Seawater unspiked from North Sea, Neeltje Jans, Netherlands is prepared for the QUASIMEME proficiency programs. The results on which the values in this report are based were taken from the periods given in the following table.

Year.Round	Program	Sample			
		Round Id			
2024.2	AQ3	QTM367SW			



Consensus Values AQ3



Method: Metals - AQ3									
Element	Unit	Mean	Std.Dev.	CV %	Ν	Median	MAD	Uncertainty	Rel.Uncert. %
Copper	µg/l	4.80	0.510	10.6	17	4.72	0.320	0.155	3.22
Arsenic	µg/l	1.75	0.218	12.5	13	1.79	0.130	0.076	4.33
Zinc	μg/l	17.4	1.17	6.7	16	17.7	0.812	0.366	2.10
Boron	µg/l	4185	291	7.0	11	4270	210	110	2.62
Uranium	μg/l	2.96	0.159	5.4	9	2.92	0.140	0.066	2.23
Magnesium	mg/l	1139	50.9	4.5	11	1140	20.0	19.2	1.68
Strontium	mg/l	7.04	0.676	9.6	13	7.11	0.340	0.234	3.33

Indicative Values AQ3



Method: Metals - AQ3									
Element	Unit	Mean	Std.Dev.	CV %	Ν	Median	MAD	Uncertainty	Rel.Uncert. %
Cadmium	µg/l	0.046	0.016	35.4	11	0.047	0.009	0.006	13.3
Lead	µg/l	0.232	0.080	34.4	12	0.234	0.037	0.029	12.4
Cobalt	µg/l	0.091	0.024	25.8	7	0.098	0.009	0.011	12.2
Manganese	µg/l	0.395	0.086	21.8	9	0.413	0.048	0.036	9.09
Chromium	µg/l	0.383	0.155	40.5	8	0.403	0.069	0.069	17.9
Nickel	µg/l	1.07	0.310	29.0	16	1.09	0.217	0.097	9.07
Vanadium	µg/l	1.85	0.518	27.9	12	1.83	0.364	0.187	10.1