



QUASIMEME

Quality assurance of information
for marine environmental monitoring

Certificate of Analysis



Metals in seawater

REFERENCE MATERIAL

AQ3 sample 161



Certificate of Analysis AQ3 161

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 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 10 results while the relative uncertainty is smaller than 6.25%. Indicative Values are based on a relative uncertainty of maximum 35% with at least 4 and less than 10 results or a relative uncertainty higher than 6.25%.

For each determinand the following parameters are given: mean, standard deviation, coefficient of variation, number of results, median, MAD (Median of Absolute Deviation) and the uncertainty in the assigned value. The confidence limits (at 95 % probability) are calculated for these determinands.

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 161 of Seawater (unspiked) from North Sea (near Neeltje Jans) 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
2021.1	AQ3	QTM311SW



Consensus Values AQ3

Method: Metals - AQ3

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
Arsenic	µg/l	2.37	0.369	15.6	18	2.52	0.275	0.109	2.19	-	2.55
Copper	µg/l	3.51	0.445	12.7	19	3.60	0.324	0.128	3.30	-	3.72
Vanadium	µg/l	1.80	0.302	16.8	17	1.83	0.194	0.091	1.64	-	1.95
Zinc	µg/l	2.52	0.467	18.6	15	2.47	0.347	0.151	2.26	-	2.77



Indicative Values AQ3

Method: Metals - AQ3

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
Boron	µg/l	4490	414	9.2	9	4440	266	173	4175	-	4799
Cadmium	µg/l	0.0138	0.0080	57.7	10	0.0170	0.0063	0.0032	0.0082	-	0.0194
Chromium	µg/l	0.213	0.2088	97.9	14	0.282	0.1620	0.0698	0.0936	-	0.333
Manganese	µg/l	0.0780	0.0368	47.1	10	0.0935	0.0275	0.0145	0.0521	-	0.104
Nickel	µg/l	0.506	0.1123	22.2	15	0.530	0.0820	0.0362	0.444	-	0.568