QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 350

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis Biota 350

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.

The results of each determinand is expressed on a wet weight basis.

Sample information

QUASIMEME reference materials cover a range of natural Biota species from contaminated waters from the North Sea and/or Mediterranean. The supplied wet test materials are homogenised and sterilised by autoclaving.

This Biota sample 350 of Mussels from Kattegat, Denmark 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
2025.1	BT1	QTM147BT
2021.2	BT1	QTM132BT
2018.2	BT1	QTM120BT
2017.1	BT1	QTM114BT

Consensus Values BT1

Method: Metals - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Mercury	µg/kg	14.2	2.08	14.7	112	14.3	1.40	0.246	1.73
Copper	µg/kg	1392	114	8.2	112	1387	66.5	13.4	0.964
Cadmium	µg/kg	179	14.2	7.9	111	178	8.40	1.68	0.940
Aluminium	mg/kg	17.3	5.41	31.2	40	17.2	3.55	1.07	6.17
Lead	µg/kg	188	21.6	11.5	103	190	11.6	2.66	1.41
Cobalt	µg/kg	117	12.5	10.7	48	116	8.51	2.26	1.93
Iron	mg/kg	38.6	5.50	14.2	74	38.2	3.73	0.799	2.07
Manganese	µg/kg	4864	611	12.6	73	4815	373	89.4	1.84
Lithium	µg/kg	62.1	5.04	8.1	9	63.4	2.61	2.10	3.38
Selenium	µg/kg	640	71.8	11.2	73	639	56.9	10.5	1.64
Arsenic	mg/kg	2.05	0.175	8.5	103	2.04	0.121	0.022	1.05
Chromium	µg/kg	188	29.0	15.4	98	189	17.0	3.66	1.94
Nickel	µg/kg	304	32.6	10.7	100	306	19.6	4.07	1.34
Zinc	mg/kg	28.8	2.56	8.9	112	28.9	1.63	0.303	1.05
Silver	µg/kg	6.55	1.05	16.0	35	6.74	0.710	0.221	3.37
Vanadium	µg/kg	140	17.3	12.3	48	140	11.0	3.12	2.22
Sodium	mg/kg	4998	527	10.5	22	4944	249	140	2.81
Magnesium	mg/kg	464	28.5	6.1	25	466	20.0	7.13	1.53
Phosphorus	mg/kg	2954	238	8.1	16	2960	143	74.3	2.52
Potassium	mg/kg	1624	159	9.8	20	1648	94.5	44.4	2.73
Calcium	mg/kg	499	50.9	10.2	19	503	33.0	14.6	2.92
Strontium	µg/kg	4761	351	7.4	9	4837	216	146	3.07
Molybdene	µg/kg	104	10.7	10.3	29	104	6.60	2.49	2.40
Antimony	µg/kg	2.81	0.546	19.4	17	2.80	0.370	0.166	5.89
Barium	µg/kg	6577	906	13.8	21	6563	684	247	3.76
Uranium	µg/kg	30.6	2.89	9.4	20	30.7	1.76	0.806	2.64

Method: Weight - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Dry-weight	%	22.2	0.332	1.5	72	22.2	0.185	0.049	0.220
Ash-Weight	%	1.94	0.153	7.9	8	1.90	0.080	0.068	3.49

Method: Lipids - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Total-Lipid	%	2.65	0.618	23.3	22	2.58	0.475	0.165	6.21

Indicative Values BT1

Method: Metals - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Tin	µg/kg	30.8	10.9	35.3	18	33.6	7.16	3.20	10.4
Sulfur	mg/kg	2351	212	9.0	4	2288	113	133	5.64
Titanium	µg/kg	1151	276	23.9	8	1192	134	122	10.6
Rubidium	µg/kg	730	106	14.5	5	743	64.0	59.0	8.09
Thallium	µg/kg	1.91	0.445	23.3	13	1.98	0.270	0.154	8.08
Bismuth	µg/kg	3.37	0.165	4.9	4	3.36	0.078	0.103	3.06