QUASIMEME

Quality assurance of information for marine environmental monitoring

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Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 342

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis Biota 342

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 % probabilty) are calculated for these determinands.

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 342 of Mussel tissue from Commercial mussels from Chili 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
2020.2	BT1	QTM128BT
2019.1	BT1	QTM123BT
2016.2	BT1	QTM112BT
2015.2	BT1	QTM108BT

Consensus Values BT1

Method: Metals - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Antimony	µg/kg	1.27	0.265	20.9	18	1.37	0.199	0.078	1.14 - 1.40
Arsenic	mg/kg	1.96	0.182	9.3	128	1.96	0.125	0.020	1.93 - 1.99
Cadmium	µg/kg	238	19.2	8.1	141	240	13.0	2.0	234.8 - 241.2
Calcium	mg/kg	381	40.8	10.7	20	386	28.0	11.4	361 - 400
Chromium	µg/kg	118	23.6	20.0	109	122	17.0	2.8	113 - 122
Cobalt	µg/kg	30.6	2.83	9.2	56	30.6	2.01	0.47	29.9 - 31.4
Copper	µg/kg	1050	81	7.7	133	1050	56	9	1035 - 1062
Iron	mg/kg	22.0	2.22	10.1	78	22.0	1.52	0.31	21.5 - 22.5
Lead	µg/kg	39.0	8.07	20.7	108	39.7	5.65	0.97	37.5 - 40.6
Magnesium	mg/kg	571	28.1	4.9	26	568	19.0	6.9	559 - 582
Manganese	µg/kg	1210	110	9.1	79	1210	75	15	1183 - 1232
Mercury	µg/kg	2.45	0.721	29.4	98	2.48	0.500	0.091	2.31 - 2.59
Molybdene	µg/kg	61.7	8.46	13.7	34	62.5	5.99	1.81	58.7 - 64.6
Nickel	µg/kg	99.5	16.62	16.7	105	102.1	11.56	2.03	96.3 - 102.8
Phosphorus	mg/kg	2240	194	8.7	14	2180	137	65	2128 - 2350
Potassium	mg/kg	1480	115	7.8	19	1500	80	33	1425 - 1536
Selenium	µg/kg	465	58.4	12.6	88	460	40.3	7.8	452 - 477
Sodium	mg/kg	3220	361	11.2	21	3170	263	99	3057 - 3385
Uranium	µg/kg	20.3	1.30	6.4	22	20.5	0.85	0.35	19.7 - 20.9
Vanadium	µg/kg	199	30.8	15.5	51	197	21.0	5.4	191 - 208
Zinc	mg/kg	26.4	2.21	8.4	136	26.6	1.52	0.24	26.07 - 26.82

Method: Weight - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Ash-Weight	%	1.38	0.044	3.2	12	1.40	0.031	0.016	1.36 - 1.41
Dry-weight	%	22.1	0.24	1.1	88	22.2	0.16	0.03	22.08 - 22.18

Method: Lipids - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Total-Lipid	%	2.35	0.213	9.1	21	2.28	0.163	0.058	2.25 - 2.44

Indicative Values BT1

Method: Metals - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Aluminium	mg/kg	12.3	4.49	36.6	48	12.5	3.24	0.81	11.0 - 13.6
Barium	µg/kg	81.8	38.96	47.6	21	89.8	28.76	10.63	64.1 - 99.5
Bismuth	µg/kg	0.418	0.1344	32.2	5	0.405	0.0881	0.0751	0.263 - 0.572
Cesium	µg/kg	2.04	0.109	5.4	5	2.04	0.080	0.061	1.92 - 2.17
Gallium	µg/kg	4.11	2.252	54.8	7	4.70	1.700	1.064	2.10 - 6.12
Lithium	µg/kg	69.8	6.80	9.7	9	67.7	4.38	2.83	64.7 - 75.0
Rubidium	µg/kg	582	34.4	5.9	9	578	24.0	14.3	556 - 608
Silver	µg/kg	1.43	0.678	47.5	21	1.58	0.480	0.185	1.12 - 1.74
Strontium	µg/kg	4400	264	6.0	8	4440	191	117	4184 - 4615
Sulfur	mg/kg	2510	118	4.7	4	2490	79	74	2349 - 2676
Thallium	µg/kg	0.935	0.5056	54.1	10	0.951	0.3370	0.1999	0.579 - 1.29
Tin	µg/kg	88.9	35.55	40.0	25	95.1	23.18	8.89	74.3 - 104
Titanium	µg/kg	1120	180	16.1	10	1140	115	71	989 - 1242