QUASIMEME

Quality assurance of information for marine environmental monitoring

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Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 345

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis Biota 345

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 345 of Mussels spiked with organotins from Commercial mussels from Chile 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
2022.1	BT8	QSP081BT
2019.2	BT1	QTM125BT
2019.2	BT8	QSP071BT
2018.2	BT8	QSO067BT
2017.2	BT8	QSP062BT
2016.1	BT8	QSP057BT

Consensus Values BT1

Method: Metals - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Arsenic	mg/kg	2.51	0.248	9.9	33	2.50	0.167	0.054	2.42 - 2.60
Cadmium	µg/kg	349	40.7	11.7	33	347	29.3	8.9	335 - 364
Chromium	µg/kg	70.9	10.06	14.2	21	70.0	6.90	2.74	66.4 - 75.5
Cobalt	µg/kg	52.4	3.28	6.2	15	52.0	2.20	1.06	50.6 - 54.2
Copper	µg/kg	1270	106	8.4	35	1290	77	22	1232 - 1305
Iron	mg/kg	18.3	2.04	11.2	24	18.4	1.40	0.52	17.4 - 19.1
Lead	µg/kg	11.3	1.97	17.5	19	11.7	1.46	0.56	10.3 - 12.2
Manganese	µg/kg	1280	133	10.4	22	1280	90	35	1218 - 1335
Nickel	µg/kg	123	8.8	7.2	25	125	6.4	2.2	119.5 - 126.8
Selenium	µg/kg	490	58.9	12.0	18	491	40.0	17.3	461 - 519
Vanadium	µg/kg	432	65.3	15.1	12	436	46.1	23.5	391 - 473
Zinc	mg/kg	21.9	1.08	4.9	35	22.0	0.75	0.23	21.52 - 22.26

Method: Weight - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Dry-weight	%	24.4	0.41	1.7	22	24.5	0.30	0.11	24.24 - 24.60

Indicative Values BT1

Method: Metals - BT1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Aluminium	mg/kg	9.69	2.763	28.5	14	9.63	1.831	0.923	8.10 - 11.3
Antimony	µg/kg	1.44	0.982	68.4	7	1.51	0.751	0.464	0.558 - 2.31
Barium	µg/kg	170	66.7	39.3	6	170	48.1	34.0	103 - 236
Calcium	mg/kg	423	14.0	3.3	7	427	10.0	6.6	410 - 436
Magnesium	mg/kg	565	30.3	5.4	9	559	20.6	12.6	542 - 588
Mercury	µg/kg	2.09	0.665	31.8	22	2.23	0.445	0.177	1.80 - 2.38
Molybdene	µg/kg	67.7	12.26	18.1	8	65.8	8.40	5.42	57.7 - 77.7
Phosphorus	mg/kg	2240	225	10.0	6	2240	153	115	2019 - 2468
Potassium	mg/kg	1760	78	4.4	7	1770	51	37	1691 - 1829
Silver	µg/kg	3.28	0.516	15.8	9	3.28	0.361	0.215	2.89 - 3.67
Sodium	mg/kg	3280	75	2.3	7	3280	51	35	3216 - 3350
Thallium	µg/kg	1.76	0.265	15.0	4	1.67	0.200	0.166	1.40 - 2.13
Tin	µg/kg	37.0	18.91	51.1	7	33.6	13.81	8.93	20.1 - 53.9
Titanium	µg/kg	934	106.5	11.4	4	924	69.0	66.6	786 - 1081
Uranium	µg/kg	16.7	3.13	18.8	7	16.4	2.37	1.48	13.9 - 19.5

Consensus Values BT8

Method: Organometals - BT8

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Dibutyltin (DBT)	µg Sn/kg	0.895	0.2183	24.4	38	0.915	0.1505	0.0443	0.823 - 0.967
Tributyltin (TBT)	µg Sn/kg	5.89	1.094	18.6	54	6.09	0.737	0.186	5.59 - 6.19

Indicative Values BT8

Method: Organometals - BT8

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Monobutyltin (MBT)	µg Sn/kg	0.964	0.3992	41.4	38	0.996	0.2645	0.0809	0.833 - 1.09
Triphenyltin (TPhT)	µg Sn/kg	0.310	0.2298	74.2	17	0.400	0.1560	0.0697	0.192 - 0.428