QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 353

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis Biota 353

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 353 of Mussels spiked with organics 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
2017.2	BT4	QPH088BT
2017.1	BT8	QSP061BT

Consensus Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Benzo[a]anthracene	µg/kg	2.39	0.380	15.9	16	2.50	0.283	0.119	2.19 - 2.60
Benzo[g,h,i]perylene	µg/kg	1.51	0.187	12.4	11	1.45	0.130	0.070	1.38 - 1.63
Chrysene	µg/kg	5.35	0.716	13.4	13	5.43	0.490	0.248	4.92 - 5.78
Fluoranthene	µg/kg	16.0	2.17	13.6	17	16.2	1.46	0.66	14.9 - 17.1
Phenanthrene	µg/kg	11.0	2.14	19.6	16	11.1	1.45	0.67	9.82 - 12.1

Indicative Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Acenaphthene	µg/kg	1.43	0.320	22.4	10	1.52	0.220	0.127	1.20 - 1.65
Acenaphthylene	µg/kg	1.67	0.515	30.8	8	1.64	0.348	0.228	1.25 - 2.09
Anthracene	µg/kg	0.409	0.1742	42.6	9	0.390	0.1100	0.0726	0.278 - 0.540
Benzo[a]pyrene	µg/kg	0.737	0.2839	38.5	15	0.807	0.2065	0.0916	0.581 - 0.893
Benzo[b]fluoranthene	µg/kg	3.14	0.985	31.4	13	3.19	0.710	0.341	2.55 - 3.73
Benzo[e]pyrene	µg/kg	3.34	0.343	10.3	5	3.35	0.255	0.191	2.94 - 3.73
Benzo[k]fluoranthene	µg/kg	1.07	0.199	18.7	9	1.11	0.137	0.083	0.915 - 1.22
Chrysene + Triphenylene	µg/kg	6.99	0.901	12.9	6	7.05	0.603	0.460	6.09 - 7.89
Dibenz[ah]anthracene	µg/kg	0.488	0.1134	23.2	8	0.520	0.0695	0.0501	0.396 - 0.580
Dibenzothiophene	µg/kg	0.272	0.0900	33.1	5	0.296	0.0640	0.0503	0.168 - 0.375
Fluorene	µg/kg	1.95	0.258	13.3	9	2.00	0.170	0.108	1.75 - 2.14
Indeno[1,2,3-cd]pyrene	µg/kg	1.45	0.307	21.2	13	1.54	0.227	0.107	1.27 - 1.64
Naphthalene	µg/kg	2.71	0.816	30.1	11	2.80	0.600	0.308	2.17 - 3.25
Perylene	µg/kg	0.336	0.1039	30.9	4	0.374	0.0790	0.0649	0.192 - 0.480
Pyrene	µg/kg	4.63	1.083	23.4	14	4.72	0.765	0.362	4.01 - 5.25
2-methylphenanthrene	µg/kg	1.99	0.173	8.7	5	1.99	0.130	0.097	1.79 - 2.18
3-6-dimethylphenanthrene	µg/kg	0.470	0.0821	17.5	4	0.503	0.0625	0.0513	0.356 - 0.584

Method: Lipids - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Total-Lipid	%	2.87	0.419	14.6	6	2.71	0.295	0.214	2.45 - 3.29

Indicative Values BT8

Method: Organometals - BT8

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Dibutyltin (DBT)	µg Sn/kg	0.655	0.2277	34.7	7	0.735	0.1750	0.1076	0.452 - 0.859
Monobutyltin (MBT)	µg Sn/kg	0.653	0.2771	42.4	6	0.805	0.1305	0.1414	0.376 - 0.930
Tributyltin (TBT)	µg Sn/kg	1.89	0.275	14.6	9	1.91	0.194	0.115	1.68 - 2.10