QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 346

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis Biota 346

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 346 of Mussels spiked with PAHs 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
2021.1	BT4	QPH101BT
2016.2	BT4	QPH083BT
2016.1	BT4	QPH082BT

Consensus Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Anthracene	µg/kg	2.65	0.352	13.3	59	2.65	0.250	0.057	2.55 - 2.74
Benzo[a]anthracene	µg/kg	1.22	0.312	25.6	64	1.28	0.225	0.049	1.14 - 1.30
Benzo[a]pyrene	µg/kg	1.23	0.236	19.1	64	1.28	0.160	0.037	1.18 - 1.29
Benzo[b]fluoranthene	µg/kg	5.39	1.118	20.7	61	5.44	0.780	0.179	5.10 - 5.68
Benzo[g,h,i]perylene	µg/kg	3.27	0.542	16.6	58	3.36	0.377	0.089	3.13 - 3.42
Benzo[k]fluoranthene	µg/kg	2.22	0.397	17.9	58	2.25	0.265	0.065	2.11 - 2.32
Chrysene	µg/kg	1.29	0.265	20.6	53	1.32	0.180	0.045	1.21 - 1.36
Chrysene + Triphenylene	µg/kg	1.30	0.218	16.8	20	1.38	0.160	0.061	1.19 - 1.40
Dibenz[ah]anthracene	µg/kg	1.07	0.245	22.9	44	1.11	0.165	0.046	0.994 - 1.14
Fluoranthene	µg/kg	26.4	3.52	13.4	68	26.4	2.39	0.53	25.5 - 27.2
Indeno[1,2,3-cd]pyrene	µg/kg	1.54	0.361	23.5	57	1.55	0.250	0.060	1.44 - 1.63
Phenanthrene	µg/kg	8.78	1.947	22.2	64	8.84	1.355	0.304	8.30 - 9.27
Pyrene	µg/kg	14.7	2.25	15.3	65	14.5	1.56	0.35	14.1 - 15.2

Method: Lipids - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Total-Lipid	%	2.82	0.398	14.1	29	2.79	0.285	0.092	2.67 - 2.97

Indicative Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Acenaphthene	µg/kg	11.2	4.38	39.3	48	12.3	2.95	0.79	9.88 - 12.4
Acenaphthylene	µg/kg	3.01	1.058	35.2	37	2.96	0.680	0.218	2.66 - 3.36
Dibenzothiophene	µg/kg	0.199	0.2331	117.1	18	0.226	0.1576	0.0687	0.0836 - 0.314
Fluorene	µg/kg	1.50	0.577	38.5	48	1.59	0.413	0.104	1.33 - 1.66
Naphthalene	µg/kg	12.7	4.78	37.5	45	14.5	3.16	0.89	11.3 - 14.2
1-methylnaphtalene	µg/kg	0.537	0.3611	67.2	13	0.690	0.2580	0.1252	0.321 - 0.754
2-methylnaphtalene	µg/kg	0.740	0.2072	28.0	11	0.770	0.1300	0.0781	0.602 - 0.877
3-6-dimethylphenanthrene	µg/kg	0.173	0.0431	24.9	6	0.185	0.0215	0.0220	0.130 - 0.216
C2-phenanthrenes/anthracenes	µg/kg	1.53	1.133	73.9	11	1.62	0.840	0.427	0.781 - 2.28

Method: Lipids - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Extractable-Lipid	%	2.60	0.195	7.5	8	2.55	0.140	0.086	2.44 - 2.76