QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 336

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis Biota 336

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 336 of Shrimp from Westerscheldt, the Netherlands 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
2019.1	BT8	QSP070BT
2017.2	BT4	QPH087BT
2017.1	BT8	QSP060BT
2015.1	BT4	QPH077BT
2015.1	BT8	QSP053BT
2014.1	BT4	QPH073BT
2014.1	BT8	QSP048BT

Consensus Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Fluoranthene	µg/kg	1.21	0.446	36.7	54	1.32	0.335	0.076	1.09 - 1.34

Indicative Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Acenaphthene	µg/kg	0.624	0.7192	115.3	29	0.630	0.4900	0.1669	0.350 - 0.897
Acenaphthylene	µg/kg	0.156	0.1786	114.4	24	0.190	0.1334	0.0456	0.0809 - 0.231
Anthracene	µg/kg	0.0998	0.0590	59.1	36	0.1143	0.0417	0.0123	0.0799 - 0.120
Benzo[a]anthracene	µg/kg	0.151	0.0733	48.6	43	0.168	0.0532	0.0140	0.128 - 0.173
Benzo[a]pyrene	µg/kg	0.0965	0.0780	80.8	40	0.1085	0.0585	0.0154	0.0716 - 0.121
Benzo[b]fluoranthene	µg/kg	0.226	0.1762	78.0	42	0.231	0.1237	0.0340	0.171 - 0.281
Benzo[e]pyrene	µg/kg	0.180	0.0588	32.7	26	0.200	0.0415	0.0144	0.156 - 0.204
Benzo[g,h,i]perylene	µg/kg	0.115	0.1135	98.4	34	0.138	0.0869	0.0243	0.0757 - 0.155
Benzo[k]fluoranthene	µg/kg	0.0981	0.0590	60.1	32	0.1127	0.0430	0.0130	0.0768 - 0.119
Chrysene	µg/kg	0.291	0.1712	58.9	32	0.300	0.1180	0.0378	0.229 - 0.352
Chrysene + Triphenylene	µg/kg	0.392	0.1272	32.4	16	0.400	0.0915	0.0397	0.325 - 0.460
Dibenz[ah]anthracene	µg/kg	0.0479	0.0434	90.7	23	0.0500	0.0300	0.0113	0.0292 - 0.0667
Dibenzothiophene	µg/kg	0.0809	0.0632	78.1	13	0.0960	0.0470	0.0219	0.0431 - 0.119
Fluorene	µg/kg	0.742	0.4072	54.9	33	0.821	0.2910	0.0886	0.598 - 0.886
Indeno[1,2,3-cd]pyrene	µg/kg	0.0949	0.0905	95.4	28	0.1135	0.0720	0.0214	0.0598 - 0.130
Naphthalene	µg/kg	0.939	0.6019	64.1	31	1.000	0.4300	0.1351	0.718 - 1.16
Perylene	µg/kg	0.134	0.0506	37.8	10	0.134	0.0350	0.0200	0.0980 - 0.169
Phenanthrene	µg/kg	1.45	1.012	69.7	49	1.60	0.720	0.181	1.16 - 1.74
Pyrene	µg/kg	0.782	0.3427	43.8	51	0.852	0.2520	0.0600	0.685 - 0.878
Triphenylene	µg/kg	0.322	0.1391	43.1	6	0.324	0.1000	0.0710	0.184 - 0.461
1-methylnaphtalene	µg/kg	0.468	0.2648	56.6	5	0.690	0.1900	0.1480	0.164 - 0.772
2-methylphenanthrene	µg/kg	0.188	0.1080	57.4	12	0.267	0.0790	0.0390	0.120 - 0.256
3-6-dimethylphenanthrene	µg/kg	0.0832	0.0322	38.7	7	0.1000	0.0261	0.0152	0.0544 - 0.112
1-methylpyrene	µg/kg	0.206	0.0845	41.1	4	0.210	0.0550	0.0528	0.0884 - 0.323

Method: Lipids - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Extractable-Lipid	%	1.88	0.739	39.3	11	1.95	0.550	0.278	1.39 - 2.37
Total-Lipid	%	1.59	0.438	27.5	21	1.60	0.300	0.119	1.39 - 1.79

Consensus Values BT8

Method: Organometals - BT8

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Tributyltin (TBT)	µg Sn/kg	8.57	2.112	24.7	49	8.69	1.510	0.377	7.96 - 9.17

Indicative Values BT8

Method: Organometals - BT8

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Dibutyltin (DBT)	µg Sn/kg	0.926	0.3409	36.8	33	1.020	0.2500	0.0742	0.805 - 1.05
Monobutyltin (MBT)	µg Sn/kg	0.946	0.7132	75.4	32	1.061	0.5315	0.1576	0.689 - 1.20