



QUASIMEME

Quality assurance of information
for marine environmental monitoring

Certificate of Analysis



Biota

REFERENCE MATERIAL

Biota sample 358



Certificate of Analysis Biota 358

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 % probability) 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 358 of Mussels spiked with contaminants from Kattegat 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	BT4	QPH105BT
2018.1	BT4	QPH090BT



Consensus Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
Anthracene	µg/kg	3.29	0.449	13.6	35	3.30	0.300	0.095	3.14	-	3.45
Benzo[a]anthracene	µg/kg	16.5	4.02	24.3	39	17.3	2.80	0.81	15.2	-	17.9
Benzo[a]pyrene	µg/kg	4.10	0.754	18.4	41	4.03	0.530	0.147	3.86	-	4.34
Benzo[b]fluoranthene	µg/kg	8.20	1.080	13.2	33	8.25	0.760	0.235	7.82	-	8.58
Benzo[g,h,i]perylene	µg/kg	6.31	0.967	15.3	35	6.29	0.658	0.204	5.98	-	6.65
Benzo[k]fluoranthene	µg/kg	5.37	0.679	12.6	30	5.46	0.477	0.155	5.12	-	5.63
Chrysene	µg/kg	13.7	3.59	26.1	33	14.3	2.43	0.78	12.5	-	15.0
Chrysene + Triphenylene	µg/kg	20.3	2.88	14.2	11	20.0	1.99	1.09	18.4	-	22.3
Fluoranthene	µg/kg	30.6	4.76	15.6	41	30.1	3.30	0.93	29.1	-	32.1
Indeno[1,2,3-cd]pyrene	µg/kg	2.84	0.495	17.4	30	2.88	0.342	0.113	2.65	-	3.02
Phenanthrene	µg/kg	21.9	4.58	20.9	36	22.1	3.21	0.95	20.3	-	23.4
Pyrene	µg/kg	36.3	6.18	17.0	35	35.2	4.30	1.30	34.2	-	38.4

Method: Lipids - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
Total-Lipid	%	2.29	0.269	11.7	18	2.29	0.196	0.079	2.15	-	2.42



Indicative Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
Acenaphthene	µg/kg	1.66	0.820	49.5	22	1.84	0.575	0.218	1.29	-	2.02
Acenaphthylene	µg/kg	2.38	0.930	39.1	21	2.49	0.610	0.254	1.96	-	2.80
Benzo[e]pyrene	µg/kg	8.54	1.601	18.8	14	8.40	1.130	0.535	7.62	-	9.45
Dibenz[ah]anthracene	µg/kg	0.407	0.1152	28.3	15	0.420	0.0800	0.0372	0.344	-	0.470
Dibenzothiophene	µg/kg	1.74	0.395	22.7	8	1.78	0.273	0.175	1.42	-	2.06
Fluorene	µg/kg	2.35	0.705	29.9	26	2.41	0.482	0.173	2.07	-	2.64
Naphthalene	µg/kg	3.35	1.561	46.6	19	3.66	1.148	0.448	2.60	-	4.10
Perylene	µg/kg	1.84	0.423	23.0	6	1.83	0.294	0.216	1.42	-	2.26
Triphenylene	µg/kg	6.43	0.322	5.0	5	6.38	0.230	0.180	6.06	-	6.80
1-methylnaphtalene	µg/kg	0.493	0.2300	46.6	4	0.726	0.1307	0.1437	0.174	-	0.812
2-methylnaphtalene	µg/kg	0.397	0.2190	55.2	4	0.645	0.1689	0.1369	0.0929	-	0.701
2-methylphenanthrene	µg/kg	10.8	1.37	12.6	7	10.6	0.90	0.65	9.61	-	12.0
3-6-dimethylphenanthrene	µg/kg	5.69	1.466	25.8	7	5.86	1.020	0.692	4.38	-	7.00
1-methylpyrene	µg/kg	5.83	2.013	34.5	4	5.88	1.400	1.258	3.04	-	8.63
C1-phenanthrenes/anthracenes	µg/kg	15.9	5.29	33.4	5	15.9	3.61	2.96	9.78	-	21.9
C2-phenanthrenes/anthracenes	µg/kg	8.81	4.335	49.2	5	8.99	3.260	2.423	3.82	-	13.8