QUASIMEME

Quality assurance of information for marine environmental monitoring

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Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 341

WAGENINGEN UNIVERSITY & RESEARCH

Certificate of Analysis Biota 341

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, the 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 8 results and a maximum relative uncertainty of 6.25%. Indicative Values are based on a maximum relative uncertainty of 35% and a minimum of 4 and maximum of 7 results, or a relative uncertainty greater than 6.25% when there are at least 8 results.

For each determinand the following parameters are given: mean, standard deviation, coefficient of variation, number of results, median, MAD (Median of Absolute Deviation), the uncertainty of the mean (consensus or indicative) value and the relative uncertainty.

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 341 of Mussels from IJmuiden harbor, 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
2015.1	BT2	QOR123BT
2024.2	BT4	QPH116BT
2015.2	BT4	QPH080BT
2015.1	BT4	QPH078BT
2024.2	BT8	QSP092BT

Consensus Values BT2

Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
PCB52	µg/kg	1.37	0.261	19.1	28	1.41	0.160	0.062	4.50
PCB101	µg/kg	2.13	0.372	17.5	29	2.19	0.207	0.086	4.05
PCB118	µg/kg	1.15	0.282	24.6	28	1.14	0.167	0.067	5.80
PCB153	µg/kg	3.82	0.652	17.1	29	3.80	0.439	0.151	3.96
PCB138	µg/kg	2.15	0.509	23.7	24	2.06	0.285	0.130	6.04

Method: Lipids - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Total-Lipid	%	2.82	0.234	8.3	15	2.83	0.160	0.076	2.69
Extractable-Lipid	%	2.71	0.385	14.2	13	2.74	0.170	0.133	4.91

Indicative Values BT2

Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
a-HCH	µg/kg	0.018	0.015	87.2	11	0.021	0.011	0.006	32.8
g-HCH	µg/kg	0.071	0.038	53.7	12	0.075	0.024	0.014	19.4
Transnonachlor	µg/kg	0.043	0.015	35.0	9	0.050	0.010	0.006	14.6
Dieldrin	µg/kg	0.262	0.022	8.3	6	0.266	0.015	0.011	4.24
pp'-DDE	µg/kg	0.967	0.255	26.3	25	0.925	0.189	0.064	6.58
pp'-DDD	µg/kg	0.768	0.215	27.9	21	0.759	0.128	0.059	7.62
HCB	µg/kg	0.065	0.032	49.7	19	0.063	0.023	0.009	14.3
op'-DDT	µg/kg	0.067	0.190	284.0	8	0.098	0.087	0.084	125
b-HCH	µg/kg	0.043	0.023	54.0	12	0.049	0.016	0.008	19.5
PCB28	µg/kg	0.499	0.154	30.8	24	0.515	0.112	0.039	7.87
PCB105	µg/kg	0.264	0.082	31.3	17	0.260	0.060	0.025	9.48
PCB138+PCB163	µg/kg	2.22	0.987	44.5	7	2.24	0.563	0.466	21.0
PCB156	µg/kg	0.113	0.030	26.0	12	0.124	0.013	0.011	9.39
PCB180	µg/kg	0.325	0.081	25.0	25	0.327	0.051	0.020	6.25
PCB31	µg/kg	0.318	0.092	28.9	13	0.340	0.069	0.032	10.0

Consensus Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Chrysene + Triphenylene	µg/kg	20.1	4.05	20.2	21	21.0	2.25	1.11	5.51
Benzo[e]pyrene	µg/kg	12.6	2.66	21.1	30	12.8	1.59	0.607	4.82
Indeno[1,2,3-cd]pyrene	µg/kg	1.38	0.385	27.9	53	1.40	0.232	0.066	4.80
Phenanthrene	µg/kg	18.0	4.19	23.4	60	17.8	2.55	0.677	3.77
Pyrene	µg/kg	38.1	7.66	20.1	59	38.3	4.92	1.25	3.27
Benzo[g,h,i]perylene	µg/kg	2.37	0.647	27.3	57	2.35	0.343	0.107	4.52
Fluoranthene	µg/kg	27.3	4.84	17.7	64	27.5	2.46	0.756	2.77
Benzo[a]anthracene	µg/kg	17.0	3.24	19.0	69	17.1	1.89	0.488	2.87
Benzo[b]fluoranthene	µg/kg	8.85	1.77	20.0	57	9.03	1.03	0.293	3.31
Benzo[a]pyrene	µg/kg	4.14	0.972	23.5	67	4.27	0.575	0.148	3.59
Benzo[k]fluoranthene	µg/kg	3.75	0.995	26.6	56	3.77	0.590	0.166	4.44
Chrysene	µg/kg	14.1	3.80	27.1	55	14.0	2.47	0.641	4.56
2-methylnaphtalene	µg/kg	2.93	0.546	18.6	17	2.90	0.410	0.166	5.65

Method: Lipids - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Extractable-Lipid	%	2.67	0.309	11.6	8	2.64	0.165	0.136	5.11
Total-Lipid	%	2.58	0.409	15.8	28	2.51	0.290	0.097	3.74

Indicative Values BT4

Method: Polycyclic aromatic hydrocarbons - BT4

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Naphthalene	µg/kg	1.82	0.813	44.7	38	1.95	0.480	0.165	9.07
Dibenz[ah]anthracene	µg/kg	0.498	0.228	45.8	42	0.560	0.130	0.044	8.83
Anthracene	µg/kg	2.04	0.871	42.8	51	2.08	0.520	0.152	7.49
Fluorene	µg/kg	3.71	1.57	42.2	45	3.83	1.07	0.292	7.86
Acenaphthylene	µg/kg	0.737	0.759	103.0	27	1.00	0.552	0.183	24.8
Benzo[a]fluorene	µg/kg	8.22	1.60	19.5	7	8.19	0.840	0.756	9.19
Dibenzothiophene	µg/kg	1.90	1.02	54.0	22	2.07	0.715	0.273	14.4
3-6-dimethylphenanthrene	µg/kg	14.2	4.28	30.2	10	14.9	2.01	1.69	11.9
2-methylphenanthrene	µg/kg	23.2	5.01	21.7	17	22.7	3.41	1.52	6.57
1-methylpyrene	µg/kg	11.2	3.24	28.8	5	12.1	2.39	1.81	16.1
Perylene	µg/kg	1.92	0.395	20.5	16	1.90	0.273	0.123	6.42
Triphenylene	µg/kg	8.61	1.65	19.1	10	8.76	0.953	0.651	7.57
Acenaphthene	µg/kg	1.24	0.670	54.2	38	1.34	0.483	0.136	11.0
1-methylnaphtalene	µg/kg	2.49	1.00	40.2	16	2.36	0.681	0.313	12.6
2-methylanthracene	µg/kg	2.91	1.98	68.1	6	4.84	2.61	1.01	34.8
C1-phenanthren.+ anthracen.	µg/kg	87.4	17.5	20.1	11	84.2	11.7	6.61	7.56
C2-phenanthren.+ anthracen.	µg/kg	173	42.4	24.5	13	173	23.1	14.7	8.50
C3-phenanthren.+ anthracen.	µg/kg	134	69.7	52.1	7	142	70.0	32.9	24.6
C1-pyrenes+fluoranthenes	µg/kg	68.0	29.8	43.8	9	61.9	17.1	12.4	18.3
C2-pyrenes+fluoranthenes	µg/kg	49.9	10.8	21.6	4	49.2	4.95	6.73	13.5
C1-chrysenes	µg/kg	18.7	2.90	15.5	8	19.4	1.72	1.28	6.85

Indicative Values BT8

Method: Organometals - BT8

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Tributyltin (TBT)	µg Sn/kg	7.10	1.54	21.6	5	7.10	0.879	0.859	12.1
Dibutyltin (DBT)	µg Sn/kg	5.58	0.748	13.4	6	5.50	0.311	0.382	6.83
Monobutyltin (MBT)	µg Sn/kg	2.83	1.44	50.7	6	2.77	0.815	0.733	25.9