QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 344

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis Biota 344

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 344 of Flounder tissue (whole fish) 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
2022.2	BT10	QPF028BT
2019.2	BT10	QPF016BT
2017.1	BT2	QOR130BT
2017.1	BT10	QPF006BT

Consensus Values BT2

Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
PCB28	µg/kg	3.38	0.738	21.8	23	3.47	0.505	0.192	3.06 - 3.70
PCB101	µg/kg	31.0	5.61	18.1	23	31.5	3.87	1.46	28.6 - 33.4
PCB105	µg/kg	4.58	0.809	17.7	14	4.51	0.575	0.270	4.12 - 5.05
PCB118	µg/kg	19.2	3.16	16.4	21	18.7	2.08	0.86	17.8 - 20.7
PCB138	µg/kg	46.8	5.98	12.8	20	46.7	4.12	1.67	44.0 - 49.6
PCB153	µg/kg	77.1	12.83	16.6	23	77.6	8.81	3.34	71.6 - 82.6
PCB156	µg/kg	5.44	0.959	17.6	14	5.42	0.698	0.320	4.89 - 5.99
PCB180	µg/kg	48.1	5.38	11.2	23	47.7	3.76	1.40	45.8 - 50.4
pp'-DDD	µg/kg	4.51	0.921	20.4	20	4.47	0.682	0.257	4.08 - 4.94
pp'-DDE	µg/kg	13.1	2.30	17.6	22	13.1	1.50	0.61	12.0 - 14.1

Indicative Values BT2

Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
PCB31	µg/kg	0.944	0.2791	29.6	10	0.971	0.1855	0.1103	0.747 - 1.14
PCB52	µg/kg	12.8	3.42	26.8	23	12.8	2.35	0.89	11.3 - 14.3
PCB138+PCB163	µg/kg	50.2	2.42	4.8	4	49.2	1.82	1.51	46.8 - 53.5
b-HCH	µg/kg	0.0563	0.0256	45.5	6	0.0615	0.0167	0.0131	0.0307 - 0.0819
HCB	µg/kg	0.729	0.1919	26.3	20	0.720	0.1295	0.0536	0.639 - 0.818
Dieldrin	µg/kg	2.40	0.973	40.5	6	2.43	0.600	0.497	1.43 - 3.37
Transnonachlor	µg/kg	0.428	0.1823	42.6	8	0.454	0.1279	0.0805	0.280 - 0.577

Method: Lipids - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Total-Lipid	%	3.99	0.681	17.1	10	4.08	0.455	0.269	3.51 - 4.47
Extractable-Lipid	%	4.43	0.383	8.6	6	4.26	0.280	0.196	4.05 - 4.81

Consensus Values BT10

Method: Perfluorinated alkyl substances - BT10

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
n-PFOS	µg/kg	104	22.5	21.7	29	103	15.4	5.2	95.0 - 112
total-PFOS	µg/kg	117	23.5	20.1	17	121	16.9	7.1	105 - 129
PFOSA	µg/kg	26.5	5.48	20.7	22	26.2	3.96	1.46	24.1 - 28.9
PFNA	µg/kg	0.624	0.0894	14.3	26	0.610	0.0625	0.0219	0.588 - 0.660
PFDA	µg/kg	3.05	0.401	13.1	28	3.09	0.289	0.095	2.89 - 3.20
PFUnDA	µg/kg	3.05	0.399	13.1	27	3.10	0.267	0.096	2.90 - 3.21
PFDoA	µg/kg	1.81	0.248	13.7	27	1.80	0.170	0.060	1.71 - 1.91
n-PFHxS	µg/kg	2.20	0.297	13.5	23	2.30	0.200	0.077	2.07 - 2.33

Indicative Values BT10

Method: Perfluorinated alkyl substances - BT10

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
PFDS	µg/kg	0.367	0.2092	56.9	17	0.426	0.1410	0.0634	0.260 - 0.474
PFOA	µg/kg	0.393	0.1147	29.2	21	0.382	0.0820	0.0313	0.341 - 0.445
PFTrDA	µg/kg	2.15	0.841	39.1	26	2.09	0.575	0.206	1.81 - 2.49
PFTeDA	µg/kg	0.971	0.3238	33.4	23	0.970	0.2080	0.0844	0.831 - 1.11
n-PFBS	µg/kg	0.0793	0.0150	18.9	9	0.0771	0.0110	0.0062	0.0680 - 0.0906
total-PFBS	µg/kg	0.0853	0.0006	0.7	4	0.0855	0.0005	0.0004	0.0844 - 0.0861
total-PFHxS	µg/kg	2.51	0.082	3.3	7	2.50	0.050	0.039	2.44 - 2.58
n-PFHps	µg/kg	1.16	0.286	24.7	17	1.22	0.200	0.087	1.01 - 1.30
total-PFHpS	µg/kg	1.18	0.604	51.0	6	1.14	0.425	0.308	0.580 - 1.79
NMeFOSAA	µg/kg	9.16	0.450	4.9	5	9.30	0.340	0.252	8.64 - 9.68
NEtFOSAA	µg/kg	21.8	3.63	16.6	5	22.3	2.50	2.03	17.7 - 26.0