QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis

Biota

REFERENCE MATERIAL

Biota sample 337

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis Biota 337

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 337 of Flounder 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
2023.1	BT9	QBC075BT
2022.1	BT10	QPF026BT
2020.1	BT10	QPF018BT
2020.1	BT9	QBC063BT
2018.1	BT9	QBC055BT
2017.2	BT10	QPF008BT
2016.1	BT2	QOR126BT
2016.1	BT9	QBC046BT
2014.1	BT2	QOR119BT

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	18.9	3.36	17.8	22	19.2	2.00	0.90	17.4 - 20.4
PFNA	µg/kg	0.400	0.0227	5.7	14	0.402	0.0070	0.0076	0.387 - 0.413
PFDA	µg/kg	1.36	0.096	7.0	19	1.35	0.050	0.028	1.32 - 1.41
PFUnDA	µg/kg	1.16	0.163	14.0	19	1.12	0.081	0.047	1.08 - 1.24
n-PFHxS	µg/kg	0.633	0.1278	20.2	17	0.632	0.0730	0.0388	0.568 - 0.699
total-PFOS	µg/kg	22.0	2.84	12.9	15	22.0	1.29	0.92	20.4 - 23.6

Indicative Values BT10

Method: Perfluorinated alkyl substances - BT10

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
PFOSA	µg/kg	3.17	0.675	21.3	15	3.27	0.320	0.218	2.79 - 3.54
PFDS	µg/kg	-	-	-	5	0.200	0.2	-	- - -
PFBA	µg/kg	0.230	0.1376	59.9	6	0.252	0.0895	0.0702	0.0923 - 0.367
PFOA	µg/kg	0.146	0.0335	22.9	11	0.149	0.0230	0.0126	0.124 - 0.168
PFDoA	µg/kg	0.397	0.0890	22.4	14	0.400	0.0505	0.0297	0.346 - 0.448
PFTrDA	µg/kg	0.298	0.0912	30.6	12	0.304	0.0690	0.0329	0.241 - 0.356
PFTeDA	µg/kg	0.124	0.0238	19.2	6	0.122	0.0135	0.0121	0.100 - 0.148
n-PFHps	µg/kg	0.208	0.0338	16.3	9	0.210	0.0170	0.0141	0.182 - 0.233
NEtFOSAA	µg/kg	-	-	-	5	1.28	0.1	-	- - -

Consensus Values BT2

Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
pp'-DDE	µg/kg	1.93	0.435	22.6	50	1.92	0.239	0.077	1.80 - 2.05
pp'-DDD	µg/kg	0.487	0.1539	31.6	43	0.508	0.0980	0.0293	0.439 - 0.534
HCB	µg/kg	0.251	0.0735	29.3	45	0.265	0.0450	0.0137	0.229 - 0.273
PCB28	µg/kg	0.267	0.0584	21.9	48	0.273	0.0403	0.0105	0.250 - 0.284
PCB52	µg/kg	1.25	0.297	23.7	51	1.26	0.170	0.052	1.17 - 1.33
PCB101	µg/kg	3.81	0.686	18.0	55	3.81	0.370	0.116	3.63 - 4.00
PCB118	µg/kg	2.58	0.553	21.5	53	2.55	0.331	0.095	2.43 - 2.73
PCB138+PCB163	µg/kg	6.25	1.278	20.5	17	6.15	0.705	0.388	5.60 - 6.90
PCB153	µg/kg	10.3	1.95	19.0	55	10.2	1.32	0.33	9.75 - 10.8
PCB156	µg/kg	0.483	0.1324	27.4	36	0.497	0.0815	0.0276	0.438 - 0.527
PCB180	µg/kg	3.78	0.673	17.8	56	3.72	0.375	0.112	3.60 - 3.96
PCB138	µg/kg	4.98	1.208	24.2	45	4.91	0.690	0.225	4.62 - 5.35

Method: Lipids - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Total-Lipid	%	1.92	0.438	22.9	31	1.89	0.250	0.098	1.76 - 2.08

Indicative Values BT2

Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
g-HCH	µg/kg	0.0341	0.0357	104.9	17	0.0500	0.0292	0.0108	0.0158 - 0.0524
Transnonachlor	µg/kg	0.0769	0.0363	47.3	20	0.0775	0.0200	0.0102	0.0599 - 0.0938
Dieldrin	µg/kg	0.614	0.1488	24.2	17	0.604	0.0760	0.0451	0.538 - 0.690
op'-DDT	µg/kg	0.0171	0.0160	93.8	12	0.0210	0.0117	0.0058	0.0070 - 0.0272
b-HCH	µg/kg	0.0380	0.0218	57.3	19	0.0410	0.0123	0.0062	0.0275 - 0.0485
PCB105	µg/kg	0.462	0.1600	34.6	40	0.473	0.0935	0.0316	0.411 - 0.514
PCB31	µg/kg	0.107	0.0448	41.7	26	0.117	0.0290	0.0110	0.0893 - 0.125
d-HCH	µg/kg	-	-	-	4	0.100	0.1	-	- - -

Method: Lipids - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Extractable-Lipid	%	1.82	0.447	24.6	23	1.88	0.280	0.117	1.63 - 2.01

Consensus Values BT9

Method: Brominated Flame Retardants - BT9

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
BDE47	µg/kg	0.365	0.0691	18.9	56	0.369	0.0400	0.0115	0.347 - 0.384
BDE99	µg/kg	0.0237	0.0067	28.1	39	0.0250	0.0040	0.0013	0.0216 - 0.0259
BDE100	µg/kg	0.0790	0.0219	27.7	49	0.0800	0.0125	0.0039	0.0728 - 0.0853

Indicative Values BT9

Method: Brominated Flame Retardants - BT9

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
BDE28	µg/kg	0.0176	0.0057	32.5	37	0.0180	0.0030	0.0012	0.0157 - 0.0195
BDE153	µg/kg	0.0125	0.0055	44.2	31	0.0132	0.0035	0.0012	0.0105 - 0.0146
BDE154	µg/kg	0.0295	0.0099	33.6	39	0.0310	0.0050	0.0020	0.0263 - 0.0327
a-HBCD	µg/kg	-	-	-	5	0.0200	0.0	-	- - -
BDE66	µg/kg	0.0067	0.0020	30.6	13	0.0070	0.0011	0.0007	0.0054 - 0.0079
Total lipid	(%)	1.83	0.754	41.2	6	1.95	0.309	0.385	1.08 - 2.58