



QUASIMEME

Quality assurance of information
for marine environmental monitoring

Certificate of Analysis



Biota

REFERENCE MATERIAL

Biota sample 337



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 % 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 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
2022.1	BT10	QPF026BT
2020.1	BT9	QBC063BT
2020.1	BT10	QPF018BT
2018.1	BT9	QBC055BT
2017.2	BT10	QPF008BT
2016.1	BT2	QOR126BT
2016.1	BT9	QBC046BT
2014.1	BT2	QOR119BT



Consensus Values BT2

Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
PCB28	µg/kg	0.267	0.0569	21.3	48	0.273	0.0403	0.0103	0.250	-	0.283
PCB52	µg/kg	1.26	0.255	20.3	51	1.26	0.170	0.045	1.19	-	1.33
PCB101	µg/kg	3.82	0.553	14.5	55	3.81	0.370	0.093	3.67	-	3.97
PCB105	µg/kg	0.459	0.1409	30.7	40	0.473	0.0935	0.0279	0.414	-	0.504
PCB118	µg/kg	2.59	0.489	18.9	53	2.55	0.331	0.084	2.45	-	2.72
PCB138+PCB163	µg/kg	6.20	1.011	16.3	17	6.15	0.705	0.306	5.68	-	6.71
PCB138	µg/kg	4.98	1.030	20.7	45	4.91	0.690	0.192	4.67	-	5.29
PCB153	µg/kg	10.3	1.89	18.4	55	10.2	1.32	0.32	9.78	-	10.8
PCB156	µg/kg	0.486	0.1168	24.0	36	0.497	0.0815	0.0243	0.447	-	0.526
PCB180	µg/kg	3.78	0.549	14.5	56	3.72	0.375	0.092	3.63	-	3.93
HCB	µg/kg	0.251	0.0669	26.7	45	0.265	0.0450	0.0125	0.231	-	0.271
Dieldrin	µg/kg	0.611	0.1202	19.7	17	0.604	0.0760	0.0365	0.550	-	0.673
pp'-DDD	µg/kg	0.490	0.1404	28.6	43	0.508	0.0980	0.0268	0.447	-	0.533
pp'-DDE	µg/kg	1.94	0.354	18.3	50	1.92	0.239	0.063	1.84	-	2.04

Method: Lipids - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
Total-Lipid	%	1.93	0.362	18.7	31	1.89	0.250	0.081	1.80	-	2.07
Extractable-Lipid	%	1.83	0.399	21.9	23	1.88	0.280	0.104	1.65	-	2.00



Indicative Values BT2

Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
PCB31	µg/kg	0.107	0.0420	39.4	26	0.117	0.0290	0.0103	0.0896 - 0.123
b-HCH	µg/kg	0.0381	0.0169	44.4	19	0.0410	0.0123	0.0048	0.0299 - 0.0462
g-HCH	µg/kg	0.0347	0.0370	106.6	17	0.0500	0.0292	0.0112	0.0158 - 0.0536
op'-DDT	µg/kg	0.0170	0.0159	93.3	12	0.0210	0.0117	0.0057	0.0070 - 0.0270
Transnonachlor	µg/kg	0.0738	0.0295	39.9	20	0.0775	0.0200	0.0082	0.0600 - 0.0875



Consensus Values BT9

Method: Brominated Flame Retardants - BT9

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
BDE47	µg/kg	0.367	0.0641	17.5	49	0.372	0.0440	0.0114	0.348 - 0.385
BDE100	µg/kg	0.0786	0.0201	25.6	42	0.0803	0.0135	0.0039	0.0723 - 0.0849



Indicative Values BT9

Method: Brominated Flame Retardants - BT9

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
BDE28	µg/kg	0.0174	0.0061	34.7	31	0.0180	0.0040	0.0014	0.0152 - 0.0196
BDE66	µg/kg	0.0064	0.0028	44.4	9	0.0070	0.0022	0.0012	0.0043 - 0.0085
BDE99	µg/kg	0.0225	0.0079	35.0	33	0.0220	0.0052	0.0017	0.0197 - 0.0252
BDE153	µg/kg	0.0122	0.0049	40.2	27	0.0130	0.0033	0.0012	0.0103 - 0.0142
BDE154	µg/kg	0.0287	0.0099	34.7	35	0.0300	0.0064	0.0021	0.0253 - 0.0321
a-HBCD	µg/kg	0.0120	0.0036	30.3	5	0.0135	0.0025	0.0020	0.0078 - 0.0162



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	19.0	2.91	15.3	22	19.2	2.00	0.78	17.7	-	20.3
total-PFOS	µg/kg	22.3	1.92	8.6	15	22.0	1.29	0.62	21.2	-	23.4
PFOSA	µg/kg	3.26	0.477	14.6	15	3.27	0.320	0.154	3.00	-	3.53
PFNA	µg/kg	0.401	0.0107	2.7	14	0.402	0.0070	0.0036	0.395	-	0.407
PFDA	µg/kg	1.36	0.070	5.2	19	1.35	0.050	0.020	1.33	-	1.39
PFUnDA	µg/kg	1.16	0.123	10.6	19	1.12	0.081	0.035	1.10	-	1.21
L-PFHxS	µg/kg	0.635	0.1094	17.2	17	0.632	0.0730	0.0332	0.579	-	0.691



Indicative Values BT10

Method: Perfluorinated alkyl substances - BT10

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits	
PFDS	µg/kg	0.0329	0.0151	45.8	5	0.0380	0.0110	0.0084	0.0156	- 0.0502
PFBA	µg/kg	0.226	0.1246	55.2	6	0.252	0.0895	0.0636	0.101	- 0.350
PFOA	µg/kg	0.146	0.0324	22.2	11	0.149	0.0230	0.0122	0.125	- 0.168
PFD _o A	µg/kg	0.392	0.0772	19.7	14	0.400	0.0505	0.0258	0.348	- 0.437
PFT _r DA	µg/kg	0.299	0.0967	32.3	12	0.304	0.0690	0.0349	0.238	- 0.360
PFT _e DA	µg/kg	0.125	0.0178	14.2	6	0.122	0.0135	0.0091	0.107	- 0.143
L-PFHps	µg/kg	0.207	0.0260	12.6	9	0.210	0.0170	0.0109	0.188	- 0.227
NEtFOSAA	µg/kg	1.27	0.139	11.0	5	1.26	0.096	0.078	1.11	- 1.43