



# QUASIMEME

Quality assurance of information  
for marine environmental monitoring

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## Certificate of Analysis



Biota

REFERENCE MATERIAL

Biota sample 340

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## Certificate of Analysis Biota 340

### 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 340 of Bream from Lake Zoommeer, 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	BT9	QBC071BT
2021.1	BT2	QOR146BT
2018.1	BT9	QBC056BT
2015.2	BT9	QBC045BT



### Consensus Values BT2

#### Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
PCB28	µg/kg	1.73	0.189	11.0	16	1.72	0.120	0.059	1.63	-	1.83
PCB52	µg/kg	6.17	0.991	16.1	17	6.21	0.708	0.300	5.66	-	6.68
PCB101	µg/kg	14.2	1.53	10.7	17	14.4	1.10	0.46	13.5	-	15.0
PCB118	µg/kg	10.2	1.83	18.0	16	10.8	1.29	0.57	9.23	-	11.2
PCB153	µg/kg	44.6	6.12	13.7	16	44.5	4.35	1.91	41.4	-	47.9
PCB180	µg/kg	17.9	3.22	18.0	16	17.3	2.20	1.01	16.2	-	19.6
pp'-DDE	µg/kg	9.05	1.441	15.9	15	9.21	0.970	0.465	8.26	-	9.84

#### Method: Lipids - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
Total-Lipid	%	3.28	0.213	6.5	10	3.31	0.153	0.084	3.13	-	3.43



## Indicative Values BT2

### Method: Chlorinated organics - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
PCB31	µg/kg	0.979	0.1448	14.8	6	0.970	0.0960	0.0739	0.835	-	1.12
PCB105	µg/kg	1.52	0.397	26.1	8	1.56	0.278	0.175	1.20	-	1.85
PCB138+PCB163	µg/kg	23.5	2.47	10.5	5	23.7	1.86	1.38	20.6	-	26.3
PCB138	µg/kg	22.1	3.84	17.4	12	22.4	2.65	1.38	19.7	-	24.5
PCB156	µg/kg	1.66	0.413	24.9	8	1.72	0.304	0.183	1.32	-	1.99
HCB	µg/kg	0.692	0.2133	30.8	15	0.709	0.1430	0.0689	0.575	-	0.809
Dieldrin	µg/kg	1.13	0.127	11.2	6	1.11	0.080	0.065	1.01	-	1.26
pp'-DDD	µg/kg	1.64	0.419	25.5	15	1.73	0.270	0.135	1.41	-	1.87
Heptachlor-epoxide (sum)	(µg/kg)	0.0972	0.0463	47.6	4	0.0995	0.0315	0.0289	0.0329	-	0.161
trans-chlordane	(µg/kg)	0.104	0.0546	52.3	5	0.120	0.0390	0.0305	0.0416	-	0.167

### Method: Lipids - BT2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
Extractable-Lipid	%	3.35	0.036	1.1	5	3.33	0.030	0.020	3.31	-	3.39



### Consensus Values BT9

#### Method: Brominated Flame Retardants - BT9

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
BDE47	µg/kg	1.31	0.189	14.4	45	1.30	0.130	0.035	1.26	-	1.37
BDE100	µg/kg	0.449	0.1044	23.2	43	0.470	0.0700	0.0199	0.417	-	0.481
BDE153	µg/kg	0.157	0.0478	30.5	40	0.160	0.0330	0.0095	0.141	-	0.172
BDE154	µg/kg	0.376	0.0990	26.3	43	0.371	0.0669	0.0189	0.346	-	0.407



### Indicative Values BT9

**Method: Brominated Flame Retardants - BT9**

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
BDE28	µg/kg	0.0254	0.0136	53.7	30	0.0275	0.0091	0.0031	0.0203 - 0.0305
a-HBCD	µg/kg	0.0272	0.0006	2.4	4	0.0270	0.0005	0.0004	0.0263 - 0.0281
Total lipid	(%)	3.27	0.275	8.4	4	3.25	0.175	0.172	2.89 - 3.65