



QUASIMEME

Quality assurance of information
for marine environmental monitoring

Certificate of Analysis



Sediment

REFERENCE MATERIAL

Sediment sample 11



Certificate of Analysis Sediment 11

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 dried sediment.

Sample information

QUASIMEME reference materials cover a range of natural Marine sediment species from contaminated waters from the North Sea and/or Mediterranean. There is no spiking, mixing or other alterations of the samples. For sample preparation the sediment samples are dried at 40 oC and milled to pass a 0.5 mm sieve.

This Sediment sample 11 of Harbor sediment from Aberdeen harbor, Scotland 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
2019.1	MS7	QBC058MS
2017.1	MS8	QPF001MS
2016.1	MS2	QOR126MS
2016.1	MS7	QBC047MS
2015.1	MS7	QBC042MS
2014.2	MS7	QBC040MS



Consensus Values MS2

Method: Chlorinated organics - MS2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
PCB31	µg/kg	0.265	0.0462	17.4	20	0.270	0.0300	0.0129	0.243	-	0.287
PCB52	µg/kg	0.369	0.0793	21.5	22	0.384	0.0565	0.0211	0.333	-	0.404
PCB101	µg/kg	0.788	0.1278	16.2	22	0.795	0.0885	0.0341	0.732	-	0.845
PCB118	µg/kg	0.651	0.1002	15.4	21	0.650	0.0700	0.0273	0.606	-	0.697
PCB138	µg/kg	1.24	0.270	21.7	21	1.20	0.180	0.074	1.12	-	1.37
PCB153	µg/kg	1.18	0.158	13.4	22	1.18	0.109	0.042	1.11	-	1.24
PCB180	µg/kg	0.869	0.0976	11.2	22	0.870	0.0685	0.0260	0.826	-	0.912
pp'-DDE	µg/kg	0.468	0.0581	12.4	15	0.473	0.0370	0.0188	0.436	-	0.500

Method: Carbon - MS2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
TOC	%	2.35	0.233	9.9	10	2.37	0.145	0.092	2.18	-	2.51



Indicative Values MS2

Method: Chlorinated organics - MS2

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits	
PCB105	µg/kg	0.235	0.0629	26.8	12	0.248	0.0425	0.0227	0.195	- 0.274
PCB156	µg/kg	0.144	0.0626	43.4	11	0.164	0.0440	0.0236	0.103	- 0.186
b-HCH	µg/kg	0.0177	0.0083	46.9	6	0.0200	0.0064	0.0042	0.0094	- 0.0260
g-HCH	µg/kg	0.0392	0.0285	72.9	8	0.0500	0.0212	0.0126	0.0159	- 0.0624
HCB	µg/kg	0.193	0.0413	21.4	12	0.186	0.0270	0.0149	0.167	- 0.219
Dieldrin	µg/kg	0.143	0.0413	28.8	4	0.154	0.0170	0.0258	0.0860	- 0.201
pp'-DDD	µg/kg	0.422	0.2098	49.7	13	0.486	0.1560	0.0727	0.296	- 0.548
pp'-DDT	µg/kg	0.389	0.1080	27.7	12	0.421	0.0743	0.0390	0.321	- 0.457



Consensus Values MS7

Method: Brominated Flame Retardants - MS7

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
BDE028	µg/kg	0.0511	0.0116	22.8	30	0.0528	0.0078	0.0027	0.0468 - 0.0554
BDE047	µg/kg	0.482	0.1184	24.6	45	0.493	0.0830	0.0221	0.446 - 0.517
BDE099	µg/kg	1.06	0.193	18.2	47	1.06	0.125	0.035	1.00 - 1.11
BDE100	µg/kg	0.169	0.0459	27.2	42	0.170	0.0305	0.0088	0.154 - 0.183
BDE154	µg/kg	0.0938	0.0303	32.3	42	0.1000	0.0213	0.0058	0.0844 - 0.103



Indicative Values MS7

Method: Brominated Flame Retardants - MS7

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits		
BDE153	µg/kg	0.187	0.0689	36.8	44	0.183	0.0485	0.0130	0.166	-	0.208
BDE183	µg/kg	0.0168	0.0140	83.3	14	0.0380	0.0175	0.0047	0.0088	-	0.0248
BDE209	µg/kg	39.7	20.53	51.7	32	44.9	14.32	4.54	32.3	-	47.1
BDE66	µg/kg	0.0265	0.0122	46.0	22	0.0331	0.0080	0.0032	0.0211	-	0.0318
BDE85	µg/kg	0.0246	0.0136	55.2	18	0.0331	0.0096	0.0040	0.0179	-	0.0313
a-HBCD	µg/kg	0.254	0.1078	42.4	5	0.306	0.0800	0.0602	0.130	-	0.378
g-HBCD	µg/kg	3.55	1.519	42.8	5	4.00	0.950	0.849	1.81	-	5.30



Indicative Values MS8

Method: Perfluorinated alkyl substances - MS8

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
n-PFOS	µg/kg	0.252	0.0591	23.5	5	0.230	0.0397	0.0331	0.184 - 0.320