QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis

Polycyclic Aromatic Hydrocarbons in seawater

REFERENCE MATERIAL

AQ13 sample 50

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis AQ13 50

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.

Sample information

QUASIMEME reference materials cover a range of natural SeaWater species from contaminated waters from the North Sea and/or Mediterranean.

This AQ13 sample 50 of Seawater with spike solution from North Sea 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	AQ13	QPH048SW

Consensus Values AQ13

Method: Polycyclic aromatic hydrocarbons - AQ13

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Indeno[1,2,3-cd]pyrene	µg/L	0.453	0.0882	19.5	18	0.436	0.0470	0.0260	0.409 - 0.497
Phenanthrene	µg/L	0.805	0.1514	18.8	17	0.808	0.0646	0.0459	0.727 - 0.882
Benzo[g,h,i]perylene	µg/L	0.178	0.0258	14.5	17	0.173	0.0169	0.0078	0.165 - 0.191
Fluoranthene	µg/L	2.22	0.299	13.4	18	2.15	0.162	0.088	2.07 - 2.37
Benzo[b]fluoranthene	µg/L	0.110	0.0145	13.2	18	0.110	0.0084	0.0043	0.102 - 0.117
Naphthalene	µg/L	4.33	0.915	21.2	18	4.33	0.592	0.270	3.87 - 4.78
Benzo[k]fluoranthene	µg/L	0.0479	0.0072	15.0	16	0.0469	0.0050	0.0023	0.0441 - 0.0517
Pyrene	µg/L	0.122	0.0202	16.5	15	0.119	0.0129	0.0065	0.111 - 0.133
Dibenzo[ah]anthracene	µg/L	0.213	0.0345	16.2	15	0.209	0.0256	0.0111	0.194 - 0.232
Benzo[a]anthracene	µg/L	0.207	0.0287	13.9	15	0.206	0.0199	0.0093	0.191 - 0.223
Chrysene	µg/L	0.0969	0.0152	15.6	13	0.0944	0.0117	0.0053	0.0878 - 0.106

Indicative Values AQ13

Method: Polycyclic aromatic hydrocarbons - AQ13

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Benzo[a]pyrene	µg/L	0.115	0.0256	22.2	18	0.114	0.0160	0.0075	0.103 - 0.128
Anthracene	µg/L	2.05	0.503	24.5	19	2.00	0.304	0.144	1.81 - 2.30
Acenaphthene	µg/L	1.84	0.452	24.5	16	1.88	0.229	0.141	1.60 - 2.08
Acenaphthylene	µg/L	2.11	0.485	22.9	16	2.10	0.317	0.151	1.86 - 2.37
Benzo[e]pyrene	µg/L	-	-	-	5	0.243	0.0	-	- - -
Fluorene	µg/L	0.0884	0.0209	23.6	13	0.0859	0.0094	0.0072	0.0759 - 0.101