QUASIMEME

Quality assurance of information for marine environmental monitoring

Certificate of Analysis

Polycyclic Aromatic Hydrocarbons in seawater

REFERENCE MATERIAL

AQ13 sample 46

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis AQ13 46

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 46 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
2022.1	AQ13	QPH044SW

Consensus Values AQ13

Method: Polycyclic aromatic hydrocarbons - AQ13

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Acenaphthene	µg/L	1.22	0.197	16.2	13	1.20	0.135	0.068	1.10 - 1.34
Anthracene	µg/L	0.222	0.0332	14.9	16	0.221	0.0219	0.0104	0.204 - 0.240
Benzo[a]pyrene	µg/L	0.0125	0.0011	8.9	11	0.0122	0.0008	0.0004	0.0118 - 0.0132
Benzo[k]fluoranthene	µg/L	0.0592	0.0072	12.2	13	0.0570	0.0050	0.0025	0.0549 - 0.0635
Benzo[g,h,i]perylene	µg/L	0.0196	0.0031	15.7	14	0.0198	0.0022	0.0010	0.0178 - 0.0213
Fluoranthene	µg/L	0.193	0.0372	19.3	16	0.189	0.0244	0.0116	0.174 - 0.213
Indeno[1,2,3-cd]pyrene	µg/L	0.385	0.0486	12.6	15	0.378	0.0348	0.0157	0.358 - 0.412
Naphthalene	µg/L	1.94	0.374	19.3	15	1.91	0.250	0.121	1.73 - 2.14

Indicative Values AQ13

Method: Polycyclic aromatic hydrocarbons - AQ13

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	95 % confidence limits
Acenaphthylene	µg/L	0.867	0.2090	24.1	13	0.843	0.1371	0.0725	0.742 - 0.993
Benzo[a]anthracene	µg/L	0.0234	0.0049	20.9	12	0.0235	0.0035	0.0018	0.0203 - 0.0264
Benzo[b]fluoranthene	µg/L	0.0200	0.0038	18.8	12	0.0199	0.0023	0.0014	0.0176 - 0.0224
Benzo[e]pyrene	µg/L	0.0269	0.0047	17.6	4	0.0288	0.0035	0.0030	0.0204 - 0.0335
Chrysene	µg/L	0.0191	0.0033	17.5	12	0.0192	0.0023	0.0012	0.0170 - 0.0212
Dibenzo[ah]anthracene	µg/L	0.0407	0.0133	32.8	11	0.0454	0.0098	0.0050	0.0319 - 0.0496
Fluorene	µg/L	0.0387	0.0064	16.5	9	0.0393	0.0047	0.0027	0.0339 - 0.0435
Phenanthrene	µg/L	0.473	0.1267	26.8	14	0.488	0.0830	0.0423	0.400 - 0.546
Pyrene	µg/L	0.0252	0.0057	22.5	12	0.0259	0.0039	0.0020	0.0216 - 0.0288