WAGENINGEN EVALUATING PROGRAMS

FOR ANALYTICAL LABORATORIES

Certificate of Analysis

International Sediment Exchange for Tests on Organic Contaminants

REFERENCE MATERIAL

SETOC sample 756

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis SETOC 756

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, the 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 8 results and a maximum relative uncertainty of 6.25%. Indicative Values are based on a maximum relative uncertainty of 35% and a minimum of 4 and maximum of 7 results, or a relative uncertainty greater than 6.25% when there are at least 8 results.

For each determinand the following parameters are given: mean, standard deviation, coefficient of variation, number of results, median, MAD (Median of Absolute Deviation), the uncertainty of the mean (consensus or indicative) value and the relative uncertainty.

All values, expressed on a weight basis (kg or %), are reported as oven-dried (105°C) material. Moisture is reported in the material as received.

Sample information

WEPAL reference materials are from natural sources only. There is no spiking, mixing or other alterations of the samples. For sample preparation, the SETOC samples are dried at 40°C and milled to pass a 0.5 mm sieve.

This SETOC sample 756 of Sediment, from Netherlands, is prepared for the WEPAL proficiency programs. The sample has been used in 1 period (or round). The results on which the values in this report are based were taken from the period given in the following table:

Year	Round	Number
2001	3	1

Consensus Values SETOC 756

Method: Polycyclic aromatic hydrocarbons

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
acenaphthene	µg/kg	93.2	25.8	27.7	52	96.2	13.8	4.47	4.80
fluorene	µg/kg	86.3	23.6	27.3	55	85.0	15.0	3.98	4.61
phenanthrene	µg/kg	786	115	14.7	61	797	68.0	18.4	2.34
anthracene	µg/kg	177	54.0	30.5	61	179	35.0	8.64	4.89
fluoranthene	µg/kg	2106	376	17.9	60	2085	231	60.7	2.88
pyrene	µg/kg	1684	303	18.0	58	1700	202	49.7	2.95
chrysene	µg/kg	1157	227	19.6	61	1127	142	36.3	3.13
benz(a)anthracene	µg/kg	1078	222	20.6	61	1070	147	35.6	3.30
benzo(b)fluoranthene	µg/kg	1220	244	20.0	55	1200	138	41.1	3.37
benzo(k)fluoranthene	µg/kg	619	140	22.5	57	610	90.0	23.1	3.73
benzo(a)pyrene	µg/kg	1051	208	19.8	61	1021	128	33.3	3.17
dibenz(ah)anthracene	µg/kg	178	57.8	32.5	54	181	41.5	9.83	5.53
indeno(1,2,3-cd)pyrene	µg/kg	804	180	22.4	60	796	110	29.1	3.61
benzo(ghi)perylene	µg/kg	720	181	25.1	60	686	113	29.2	4.05

Method: Other parameters

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Organic carbon	g/kg	52.2	5.56	10.6	8	52.7	2.70	2.46	4.70
Particles < 2 µm	%	13.8	1.50	10.9	10	13.5	0.700	0.591	4.30

Method: Metals

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
As	mg/kg	16.3	2.95	18.1	28	17.0	1.95	0.697	4.28
Cd	mg/kg	1.06	0.135	12.7	27	1.10	0.100	0.032	3.06
Cr	mg/kg	35.5	6.89	19.4	27	35.7	4.50	1.66	4.67
Cu	mg/kg	36.6	3.52	9.6	28	37.1	2.00	0.831	2.27
Hg	mg/kg	0.291	0.042	14.3	27	0.300	0.030	0.010	3.43
Ni	mg/kg	19.3	1.99	10.3	27	19.5	1.20	0.480	2.48
Pb	mg/kg	68.7	5.18	7.5	28	69.1	3.15	1.22	1.78
Zn	mg/kg	209	11.6	5.6	28	210	7.95	2.74	1.31

Indicative Values SETOC 756

Method: Polycyclic aromatic hydrocarbons

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
naphthalene	µg/kg	49.2	32.3	65.6	47	52.0	20.0	5.89	12.0
acenaphthylene	µg/kg	33.2	28.7	86.4	30	35.3	16.5	6.56	19.7

Method: Polychlorobiphenyls

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
PCB 028	µg/kg	1.67	1.10	66.1	25	1.80	0.800	0.276	16.5
PCB 052	µg/kg	2.68	1.01	37.6	31	3.00	0.800	0.226	8.43
PCB 101	µg/kg	3.55	1.32	37.1	35	3.80	0.800	0.278	7.84
PCB 105	µg/kg	1.20	0.558	46.4	8	1.36	0.310	0.246	20.5
PCB 118	µg/kg	2.55	0.888	34.8	31	2.61	0.450	0.199	7.81
PCB 138	µg/kg	5.00	2.02	40.4	35	5.24	1.24	0.427	8.54
PCB 153	µg/kg	4.98	1.69	34.0	35	5.00	1.00	0.358	7.19
PCB 156	µg/kg	0.626	0.297	47.5	4	0.605	0.165	0.186	29.7
PCB 180	µg/kg	3.04	1.35	44.5	35	3.10	0.890	0.286	9.40

Method: Organochlorine pesticides

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
p,p`-DDT	µg/kg	3.39	2.83	83.3	12	4.65	1.86	1.02	30.1
p,p`-DDE	µg/kg	4.09	1.64	40.2	16	4.09	1.04	0.514	12.6
p,p`-DDD	µg/kg	10.9	4.14	37.9	18	12.0	2.08	1.22	11.2

Method: Other parameters

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Mineral oil, IR	mg/kg	179	81.0	45.2	19	190	60.0	23.2	13.0
Mineral oil, GC	mg/kg	212	81.3	38.4	31	210	60.0	18.3	8.62
EOX	mg/kg	0.659	0.312	47.4	22	0.685	0.205	0.083	12.6
Inorganic carbon	g/kg	9.27	3.92	42.3	6	9.65	2.09	2.00	21.6
CN - Total	mg/kg	0.939	0.710	75.6	10	1.14	0.515	0.281	29.9