WAGENINGEN EVALUATING PROGRAMS

FOR ANALYTICAL LABORATORIES

Certificate of Analysis

International Sediment Exchange for Tests on Organic Contaminants

REFERENCE MATERIAL

SETOC sample 757

WAGENINGEN
UNIVERSITY & RESEARCH

Certificate of Analysis SETOC 757

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 757 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
2002	1	1

Consensus Values SETOC 757

Method: Polycyclic aromatic hydrocarbons

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
phenanthrene	µg/kg	234	74.1	31.7	57	243	47.0	12.3	5.25
fluoranthene	µg/kg	764	208	27.2	57	761	161	34.4	4.50
pyrene	µg/kg	612	163	26.6	54	600	118	27.7	4.52
chrysene	µg/kg	419	146	34.7	57	430	102	24.1	5.75
benz(a)anthracene	µg/kg	309	99.6	32.3	57	314	69.4	16.5	5.34
benzo(b)fluoranthene	µg/kg	479	155	32.3	50	465	91.5	27.4	5.71
benzo(a)pyrene	µg/kg	300	96.7	32.2	57	300	70.0	16.0	5.34

Method: Other parameters

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Organic carbon	g/kg	316	44.8	14.2	10	313	32.5	17.7	5.60

Method: Metals

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
As	mg/kg	13.8	2.27	16.5	26	14.0	1.24	0.557	4.03
Cr	mg/kg	29.6	6.24	21.1	29	29.1	4.10	1.45	4.89
Cu	mg/kg	52.6	5.98	11.4	30	53.0	4.00	1.36	2.59
Hg	mg/kg	0.969	0.142	14.6	29	0.980	0.120	0.033	3.39
Ni	mg/kg	25.5	3.51	13.8	30	25.2	2.20	0.801	3.14
Pb	mg/kg	146	14.1	9.7	29	146	7.00	3.27	2.25
Zn	mg/kg	196	18.6	9.5	30	195	12.0	4.25	2.17

Indicative Values SETOC 757

Method: Polycyclic aromatic hydrocarbons

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
naphthalene	µg/kg	81.6	49.2	60.3	46	90.0	35.9	9.08	11.1
acenaphthylene	µg/kg	22.6	20.9	92.8	25	28.0	15.0	5.24	23.2
acenaphthene	µg/kg	31.2	15.2	48.9	36	32.0	10.8	3.18	10.2
fluorene	µg/kg	57.1	30.9	54.2	46	65.4	22.4	5.70	9.99
anthracene	µg/kg	53.0	27.5	52.0	54	55.6	16.3	4.69	8.84
benzo(k)fluoranthene	µg/kg	220	83.6	38.0	53	220	54.2	14.4	6.53
dibenz(ah)anthracene	µg/kg	58.3	32.6	56.0	48	56.0	21.1	5.89	10.1
indeno(1,2,3-cd)pyrene	µg/kg	285	108	37.8	57	292	68.0	17.8	6.26
benzo(ghi)perylene	µg/kg	247	100	40.6	56	247	67.5	16.8	6.77

Method: Polychlorobiphenyls

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
PCB 028	µg/kg	0.894	0.749	83.8	19	1.00	0.500	0.215	24.0
PCB 052	µg/kg	0.888	0.623	70.1	20	1.00	0.380	0.174	19.6
PCB 101	µg/kg	1.82	1.11	60.7	26	1.96	0.715	0.272	14.9
PCB 118	µg/kg	0.874	0.433	49.6	18	1.00	0.250	0.128	14.6
PCB 138	µg/kg	3.76	1.56	41.3	32	4.00	1.00	0.344	9.14
PCB 149	µg/kg	3.41	1.82	53.5	4	3.16	0.835	1.14	33.4
PCB 153	µg/kg	3.44	1.15	33.3	31	3.49	0.620	0.257	7.48
PCB 180	µg/kg	2.25	1.04	46.1	30	2.55	0.670	0.236	10.5

Method: Organochlorine pesticides

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
p,p`-DDE	µg/kg	1.84	0.631	34.3	16	2.00	0.265	0.197	10.7
p,p`-DDD	µg/kg	4.94	2.80	56.5	17	5.55	1.78	0.847	17.1
o,p`-DDD	µg/kg	2.15	1.34	62.6	7	3.00	0.770	0.635	29.6

Method: Other parameters

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Mineral oil, IR	mg/kg	132	71.3	54.2	19	145	35.0	20.4	15.5
Mineral oil, GC	mg/kg	162	89.2	55.1	31	178	66.1	20.0	12.4
EOX	mg/kg	0.472	0.405	85.8	19	0.630	0.320	0.116	24.6
Particles < 2 µm	%	16.7	0.842	5.1	7	16.4	0.400	0.398	2.39
CN - Total	mg/kg	0.995	0.662	66.5	8	1.06	0.415	0.293	29.4

Indicative Values SETOC 757

Method: Metals

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Cd	mg/kg	0.826	0.265	32.1	27	0.800	0.170	0.064	7.72