



**WAGENINGEN EVALUATING PROGRAMS
FOR ANALYTICAL LABORATORIES**

Certificate of Analysis



International Sediment Exchange for Tests on Organic Contaminants

REFERENCE MATERIAL

SETOC sample 775



Certificate of Analysis SETOC 775

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 775 of Sediment, from Netherlands, is prepared for the WEPAL proficiency programs. The sample has been used in 8 periods (or rounds). Only results from the last 5 periods are used. This way, the consensus values reflect the latest 'state of the art' analytical techniques used by the laboratories. The results on which the values in this report are based were taken from the periods given in the following table:

Year	Round	Number
2025	2	2
2022	4	3
2020	2	2
2017	2	4
2014	4	3



Consensus Values SETOC 775

Method: Polycyclic aromatic hydrocarbons

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
phenanthrene	µg/kg	145	33.4	23.1	135	147	23.0	3.59	2.48
anthracene	µg/kg	20.1	10.2	50.6	103	22.3	6.13	1.25	6.24
fluoranthene	µg/kg	429	81.4	19.0	136	430	49.8	8.72	2.03
pyrene	µg/kg	202	45.3	22.4	104	201	28.6	5.55	2.75
chrysene	µg/kg	169	33.8	20.0	134	172	21.0	3.65	2.16
benz(a)anthracene	µg/kg	95.1	19.8	20.8	132	95.3	12.0	2.15	2.26
benzo(b)fluoranthene	µg/kg	194	50.1	25.8	98	199	32.6	6.32	3.26
benzo(k)fluoranthene	µg/kg	84.2	16.5	19.6	127	85.9	10.2	1.83	2.17
benzo(a)pyrene	µg/kg	83.9	18.6	22.2	131	84.7	12.7	2.04	2.43
dibenz(ah)anthracene	µg/kg	25.7	8.80	34.2	91	27.0	5.80	1.15	4.49
indeno(1,2,3-cd)pyrene	µg/kg	114	22.5	19.7	129	116	13.8	2.48	2.17
benzo(ghi)perylene	µg/kg	106	18.8	17.7	129	108	12.0	2.07	1.95
EPA ΣPAH(16)	µg/kg	1673	295	17.6	56	1714	186	49.2	2.94

Method: Organochlorine pesticides

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
p,p'-DDT	µg/kg	32.1	9.69	30.2	51	32.5	6.28	1.70	5.28
p,p'-DDE	µg/kg	62.1	16.6	26.8	52	62.8	10.0	2.88	4.64
o,p'-DDD	µg/kg	18.3	4.62	25.3	47	18.4	3.33	0.843	4.61

Method: Other parameters

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Mineral oil, GC	mg/kg	59.1	19.2	32.5	95	60.3	12.3	2.47	4.17
Organic carbon	g/kg	10.0	2.26	22.5	56	10.00	1.25	0.377	3.76
Particles < 2 µm	%	21.6	2.93	13.6	13	21.0	2.40	1.02	4.71
Particles < 63 µm	%	52.8	4.02	7.6	16	52.8	2.21	1.25	2.38

Method: Metals

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
As	mg/kg	5.50	0.869	15.8	62	5.52	0.524	0.138	2.51
Cd	mg/kg	0.207	0.028	13.3	46	0.210	0.015	0.005	2.46
Cr	mg/kg	51.0	10.5	20.6	65	51.0	6.47	1.63	3.19
Cu	mg/kg	17.7	2.03	11.4	67	18.0	1.11	0.309	1.74
Hg	mg/kg	0.053	0.012	22.3	44	0.056	0.006	0.002	4.21
Ni	mg/kg	33.9	4.14	12.2	67	34.0	2.60	0.633	1.87
Pb	mg/kg	17.6	2.45	13.9	66	17.7	1.19	0.377	2.14
Zn	mg/kg	69.6	6.27	9.0	65	69.1	4.16	0.972	1.40



Consensus Values SETOC 775

Method: Metals									(cont.)
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Ba	mg/kg	115	19.4	16.8	49	118	13.5	3.46	3.00
Co	mg/kg	8.44	0.885	10.5	52	8.44	0.515	0.153	1.82
Mo	mg/kg	0.779	0.180	23.1	36	0.778	0.105	0.037	4.81



Indicative Values SETOC 775

Method: Polycyclic aromatic hydrocarbons

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
naphthalene	µg/kg	7.22	7.55	104.6	59	8.33	5.33	1.23	17.0
acenaphthylene	µg/kg	5.61	4.48	79.9	45	6.17	2.74	0.835	14.9
acenaphthene	µg/kg	6.22	2.77	44.5	55	6.34	1.66	0.466	7.50
fluorene	µg/kg	11.1	5.40	48.7	65	12.3	2.93	0.837	7.55

Method: Polychlorobiphenyls

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
PCB 028	µg/kg	0.278	0.242	87.1	31	0.363	0.160	0.054	19.6
PCB 052	µg/kg	0.213	0.194	91.1	26	0.238	0.120	0.048	22.3
PCB 101	µg/kg	0.525	0.342	65.1	36	0.560	0.216	0.071	13.6
PCB 118	µg/kg	0.193	0.149	77.2	24	0.225	0.107	0.038	19.7
PCB 138	µg/kg	0.805	0.517	64.3	59	1.21	0.380	0.084	10.5
PCB 153	µg/kg	1.04	0.667	64.2	69	1.30	0.413	0.100	9.67
PCB 180	µg/kg	0.758	0.430	56.8	60	1.02	0.313	0.069	9.16
ΣPCB(7)	µg/kg	4.51	1.55	34.5	26	4.90	0.830	0.381	8.45

Method: Organochlorine pesticides

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
o,p'-DDT	µg/kg	5.02	1.90	37.9	40	5.16	1.16	0.376	7.50
o,p'-DDE	µg/kg	1.36	0.406	29.8	27	1.42	0.213	0.098	7.16
p,p'-DDD	µg/kg	52.6	20.4	38.8	53	52.4	13.0	3.50	6.66

Method: Other parameters

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
EOX	mg/kg	0.363	0.249	68.7	15	0.400	0.137	0.081	22.2
Inorganic carbon	g/kg	7.47	2.24	30.0	16	7.15	1.37	0.700	9.37
Particles > 63 µm	%	37.3	6.24	16.7	11	37.9	4.74	2.35	6.30
CN - Total	mg/kg	0.476	0.312	65.5	13	0.800	0.360	0.108	22.7

Method: Metals

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Sn	mg/kg	1.58	0.551	34.8	4	1.71	0.289	0.344	21.8
V	mg/kg	45.0	14.2	31.6	5	43.5	11.2	7.95	17.6