



QUASIMEME

Quality assurance of information
for marine environmental monitoring

Certificate of Analysis



Sediment

REFERENCE MATERIAL

Sediment sample 81



Certificate of Analysis Sediment 81

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.

The results of each determinand is expressed on dried sediment.

Sample information

QUASIMEME reference materials cover a range of natural Marine sediment species from contaminated waters from the North Sea and/or Mediterranean. There is no spiking, mixing or other alterations of the samples. For sample preparation the sediment samples are dried at 40 °C and milled to pass a 0.5 mm sieve.

This Sediment sample 81 of Mix Oosterschelde and zeebrugge from Mix Oosterschelde and zeebrugge 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
2025.1	MS1	QTM151MS



Consensus Values MS1

Method: Real totals - MS1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Aluminium-RT	%	3.95	0.398	10.1	12	3.94	0.195	0.144	3.63
Arsenic-RT	mg/kg	11.3	1.14	10.1	12	11.0	0.638	0.411	3.65
Chromium-RT	mg/kg	68.5	10.4	15.2	14	67.9	6.03	3.48	5.08
Copper-RT	mg/kg	15.8	2.24	14.2	13	15.6	1.58	0.777	4.93
Iron-RT	%	2.19	0.203	9.3	13	2.20	0.110	0.070	3.21
Lead-RT	mg/kg	31.4	4.28	13.6	13	31.7	1.80	1.48	4.73
Manganese-RT	mg/kg	281	26.3	9.4	10	283	21.9	10.4	3.70
Mercury-RT	µg/kg	124	6.35	5.1	12	124	4.26	2.29	1.84
Nickel-RT	mg/kg	19.8	2.24	11.3	12	19.8	1.27	0.807	4.07
Zinc-RT	mg/kg	200	16.6	8.3	14	198	9.08	5.54	2.77
Barium-RT	mg/kg	197	11.3	5.7	8	200	6.00	4.98	2.53
Vanadium-RT	mg/kg	73.2	8.82	12.1	10	70.8	5.84	3.49	4.77

Method: Acid extractable (So-called totals) - MS1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Arsenic-AE	mg/kg	9.39	1.08	11.5	23	9.44	0.598	0.282	3.00
Cadmium-AE	µg/kg	305	39.8	13.1	21	310	20.0	10.9	3.56
Chromium-AE	mg/kg	48.0	10.7	22.3	23	51.0	7.93	2.79	5.81
Copper-AE	mg/kg	14.3	0.879	6.2	21	14.3	0.600	0.240	1.68
Iron-AE	%	1.93	0.135	7.0	19	1.91	0.087	0.039	2.02
Lead-AE	mg/kg	27.3	2.37	8.7	22	27.5	1.37	0.633	2.32
Lithium-AE	mg/kg	30.0	2.50	8.3	13	29.7	1.50	0.868	2.89
Manganese-AE	mg/kg	254	19.0	7.5	19	254	11.2	5.46	2.15
Mercury-AE	µg/kg	118	22.7	19.3	19	117	12.5	6.51	5.52
Nickel-AE	mg/kg	16.5	2.03	12.3	22	16.8	1.12	0.540	3.28
Zinc-AE	mg/kg	190	8.56	4.5	22	190	4.89	2.28	1.20
Magnesium-AE	mg/kg	7946	1004	12.6	9	7861	619	418	5.26
Phosphorus-AE	mg/kg	734	57.2	7.8	11	728	24.0	21.5	2.93
Calcium-AE	g/kg	78.7	5.62	7.1	8	77.7	2.78	2.48	3.16
Vanadium-AE	mg/kg	57.1	9.21	16.1	19	56.8	6.95	2.64	4.63
Cobalt-AE	mg/kg	5.74	0.408	7.1	17	5.64	0.345	0.124	2.16
Strontium-AE	mg/kg	277	17.5	6.3	10	274	12.7	6.92	2.50

Method: Carbon - MS1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
TOC	%	1.76	0.135	7.7	10	1.76	0.055	0.053	3.03



Indicative Values MS1

Method: Real totals - MS1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Cadmium-RT	µg/kg	317	53.8	17.0	11	304	27.0	20.3	6.40
Lithium-RT	mg/kg	37.4	6.81	18.2	10	37.5	4.10	2.69	7.21
Cobalt-RT	mg/kg	6.11	0.737	12.1	7	6.27	0.380	0.348	5.69
Strontium-RT	mg/kg	288	24.5	8.5	6	292	14.1	12.5	4.33
Molybdenum-RT	mg/kg	1.15	0.132	11.5	4	1.18	0.070	0.083	7.17
Uranium-RT	mg/kg	2.15	0.084	3.9	4	2.14	0.040	0.052	2.43

Method: Acid extractable (So-called totals) - MS1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Aluminium-AE	%	2.12	0.758	35.7	18	2.20	0.470	0.223	10.5
Sodium-AE	mg/kg	13727	479	3.5	5	13656	301	268	1.95
Sulfur-AE	mg/kg	4760	115	2.4	4	4726	61.0	71.6	1.50
Potassium-AE	mg/kg	7697	1438	18.7	6	7618	683	734	9.53
Selenium-AE	mg/kg	0.379	0.011	2.8	5	0.380	0.005	0.006	1.58
Barium-AE	mg/kg	60.3	29.7	49.2	16	60.1	23.2	9.27	15.4
Thallium-AE	µg/kg	265	69.7	26.3	6	268	54.9	35.6	13.4
Molybdenum-AE	mg/kg	0.984	0.157	15.9	10	0.995	0.128	0.062	6.30
Uranium-AE	mg/kg	1.18	0.177	15.1	6	1.20	0.112	0.091	7.70

Method: Carbon - MS1

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Inorganic-Carbonate	%	2.20	0.388	17.6	5	2.32	0.129	0.217	9.84