

GBA Gesellschaft für Bioanalytik mbH · Flensburger Straße 15 · 25421 Pinneberg

Tallinn University of Technology
Department of Marine Systems
Akadeemia tee 15 a



12618 Tallinn

Test Report No.: 2023P500548 / 2 supplements version 1

Customer	Tallinn University of Technology Department of Marine Systems
Date of arrival	01.12.2022
Project	sediment samples
Material	Sediment
Order	Analyses by order of customer
Packing material	Schraubdeckelglas
Amount of sample	ca. 3 kg
GBA-No.	22521896
Taking of sample	durch den Auftraggeber
Transport of sample	TNT
Laboratory	GBA Gesellschaft für Bioanalytik mbH
Start / End of analysis	01.12.2022 - 18.01.2023
Sample storage	If no other agreement was made solid samples are going to be stored for three months and water samples for two weeks after the report has been sent.

Remarks

Pinneberg, 18.01.2023



i. A. F. Kreutz
Project manager

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Test Report No.: 2023P500548 / 2
sediment samples

GBA-No.		22521896	22521896	22521896
Sample-No.		001	002	003
Material		Sediment	Sediment	Sediment
Sample identification		SWE A	SWE B	SWE I
Amount of samples		ca. 3 kg	ca. 3 kg	ca. 3 kg
Date of arrival		01.12.2022	01.12.2022	01.12.2022
Test results		Units		
Grain size distribution		Nasssiegung/S chlämmanalyse	Nasssiegung/S chlämmanalyse	Nasssiegung/S chlämmanalyse
Fraction >8 mm	W.-% DW	0,2	0,1	<0,1
Fraction >4 mm	W.-% DW	0,5	0,1	0,6
Fraction > 2 mm	W.-% DW	0,3	0,2	2,9
Fraction >1 mm	W.-% DW	1,5	1,0	1,9
Fraction >500 µm	W.-% DW	31,3	1,3	0,9
Fraction >250 µm	W.-% DW	29,3	1,4	3,3
Fraction >125 µm	W.-% DW	36,0	28,3	11,5
Fraction >63 µm	W.-% DW	0,4	52,0	42,2
Fraction >20 µm	W.-%	<0,1	10,0	26,7
Fraction >2 µm	W.-%	0,2	4,2	4,4
Fraction <2 µm	W.-%	0,3	1,4	5,7
Digestion				
Arsenic (As)	mg/kg DW	3,7	1,4	1,7
Lead (Pb)	mg/kg DW	3,9	3,5	4,1
Cadmium (Cd)	mg/kg DW	<0,10	<0,10	<0,10
Chromium, total (Cr)	mg/kg DW	3,7	5,1	6,2
Copper (Cu)	mg/kg DW	2,2	2,7	3,9
Nickel (Ni)	mg/kg DW	2,1	3,1	4,3
Mercury (Hg)	mg/kg DW	<0,10	<0,10	<0,10
Zinc (Zn)	mg/kg DW	16	13	17
Organotin compounds				
Monobutyltin-cation	µg/kg DW	<1,0	<1,0	<1,0
Dibutyltin-cation	µg/kg DW	<1,0	<1,0	<1,0
Monophenyltin-cation	µg/kg DW	<1,0	<1,0	<1,0
Tributyltin-cation	µg/kg DW	<1,0	<1,0	<1,0
Monooctyltin-cation	µg/kg DW	<1,0	<1,0	<1,0
Tetrabutyltin	µg/kg DW	<1,0	<1,0	<1,0
Diphenyltin-cation	µg/kg DW	<1,0	<1,0	<1,0
Diocetyl tin-cation	µg/kg DW	<1,0	<1,0	<1,0
Triphenyltin-cation	µg/kg DW	<1,0	<1,0	<1,0
Tricyclohexyltin-cation	µg/kg DW	<1,0	<1,0	<1,0
Sum PAH (16)	mg/kg DW	n.n.	n.n.	n.n.
Naphthalene	mg/kg DW	<0,010	<0,010	<0,010
Acenaphthylene	mg/kg DW	<0,010	<0,010	<0,010
Acenaphthene	mg/kg DW	<0,010	<0,010	<0,010
Fluorene	mg/kg DW	<0,010	<0,010	<0,010
Phenanthrene	mg/kg DW	<0,010	<0,010	<0,010
Anthracene	mg/kg DW	<0,010	<0,010	<0,010
Fluoranthene	mg/kg DW	<0,010	<0,010	<0,010
Pyrene	mg/kg DW	<0,010	<0,010	<0,010
Benz(a)anthracene	mg/kg DW	<0,010	<0,010	<0,010

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GBA-No.		22521896	22521896	22521896
Sample-No.		001	002	003
Material		Sediment	Sediment	Sediment
Sample identification		SWE A	SWE B	SWE I
Amount of samples		ca. 3 kg	ca. 3 kg	ca. 3 kg
Date of arrival		01.12.2022	01.12.2022	01.12.2022
Chrysene	mg/kg DW	<0,010	<0,010	<0,010
Benzo(b)fluoranthene	mg/kg DW	<0,010	<0,010	<0,010
Benzo(k)fluoranthene	mg/kg DW	<0,010	<0,010	<0,010
Benzo(a)pyrene	mg/kg DW	<0,010	<0,010	<0,010
Indeno(1,2,3-cd)pyrene	mg/kg DW	<0,010	<0,010	<0,010
Dibenz(a,h)anthracene	mg/kg DW	<0,010	<0,010	<0,010
Benzo(g,h,i)perylene	mg/kg DW	<0,010	<0,010	<0,010
Sum PCB	mg/kg DW	n.n.	n.n.	n.n.
PCB 28	mg/kg DW	<0,00010	<0,00010	<0,00010
PCB 52	mg/kg DW	<0,00010	<0,00010	<0,00010
PCB 101	mg/kg DW	<0,00010	<0,00010	<0,00010
PCB 118	mg/kg DW	<0,00010	<0,00010	<0,00010
PCB 153	mg/kg DW	<0,00010	<0,00010	<0,00010
PCB 138	mg/kg DW	<0,00010	<0,00010	<0,00010
PCB 180	mg/kg DW	<0,00010	<0,00010	<0,00010
TOC	W.-% DW	0,067	0,23	0,29
Total Nitrogen	mg/kg DW	272	311	420
Phosphorus (P)	mg/kg DW	210	270	280
Mineraloil hydrocarbons (C10-C40)	mg/kg	9,1	6,6	8,3

DL = Detectionlimit MU = Measurement uncertainty n.a. = not evaluable n.b. = not definable n.n. = undetectable

Test Report No.: 2023P500548 / 2
Used methods

Parameter	LOQ	Unit	Methods
Grain size distribution			DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >8 mm		W.-% DW	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >4 mm		W.-% DW	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction > 2 mm		W.-% DW	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >1 mm		W.-% DW	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >500 µm		W.-% DW	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >250 µm		W.-% DW	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >125 µm		W.-% DW	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >63 µm		W.-% DW	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >20 µm	0,10	W.-%	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction >2 µm	0,10	W.-%	DIN EN ISO 17892-4: 2017-04 ^a 5
Fraction <2 µm	0,10	W.-%	DIN EN ISO 17892-4: 2017-04 ^a 5
Digestion			DIN EN 13657: 2003-01 ^a 5
Arsenic (As)	1,0	mg/kg DW	DIN EN 16171: 2017-01 ^a 5
Lead (Pb)	1,0	mg/kg DW	DIN EN 16171: 2017-01 ^a 5
Cadmium (Cd)	0,10	mg/kg DW	DIN EN 16171: 2017-01 ^a 5
Chromium, total (Cr)	1,0	mg/kg DW	DIN EN 16171: 2017-01 ^a 5
Copper (Cu)	1,0	mg/kg DW	DIN EN 16171: 2017-01 ^a 5
Nickel (Ni)	1,0	mg/kg DW	DIN EN 16171: 2017-01 ^a 5
Mercury (Hg)	0,10	mg/kg DW	DIN EN 16171: 2017-01 ^a 5
Zinc (Zn)	1,0	mg/kg DW	DIN EN 16171: 2017-01 ^a 5
Organotin compounds			
Monobutyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Dibutyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Monophenyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Tributyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Monooctyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Tetrabutyltin	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Diphenyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Dioctyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Triphenyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Tricyclohexyltin-cation	1,0	µg/kg DW	E DIN EN ISO 23161: 2017-11 ^a 5
Sum PAH (16)		mg/kg DW	calculated 5
Naphthalene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Acenaphthylene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Acenaphthene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Fluorene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Phenanthrene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Anthracene	0,0020	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Fluoranthene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Pyrene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5

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Parameter	LOQ	Unit	Methods
Benz(a)anthracene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Chrysene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Benzo(b)fluoranthene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Benzo(k)fluoranthene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Benzo(a)pyrene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Indeno(1,2,3-cd)pyrene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Dibenz(a,h)anthracene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Benzo(g,h,i)perylene	0,010	mg/kg DW	DIN ISO 18287: 2006-05 ^a 5
Sum PCB		mg/kg DW	calculated 5
PCB 28	0,00010	mg/kg DW	DIN ISO 10382: 2003-05 ^a 5
PCB 52	0,00010	mg/kg DW	DIN ISO 10382: 2003-05 ^a 5
PCB 101	0,00010	mg/kg DW	DIN ISO 10382: 2003-05 ^a 5
PCB 118	0,00010	mg/kg DW	DIN ISO 10382: 2003-05 ^a 5
PCB 153	0,00010	mg/kg DW	DIN ISO 10382: 2003-05 ^a 5
PCB 138	0,00010	mg/kg DW	DIN ISO 10382: 2003-05 ^a 5
PCB 180	0,00010	mg/kg DW	DIN ISO 10382: 2003-05 ^a 5
TOC	0,050	W.-% DW	DIN EN 13137: 2001-12 (as single analysis) ^a 5
Total Nitrogen		mg/kg DW	DIN ISO 11261 : 1997-05 ^a 5
Phosphorus (P)		mg/kg DW	DIN ISO 22036: 2009-06 ^a 5
Mineraloil hydrocarbons (C10-C40)		mg/kg	DIN EN ISO 16703: 2011-09 ^a 5

With ^a marked methods are accredited methods. Detection limits (DL) may vary depending on the matrix of the sample.
 Untersuchungslabor: 5GBA Pinneberg

Setteproovide protokoll

1. Proovivõtu kuupäev: 3.11.2022

2. Proovivõtu asukohtade koordinaadid:

Jaam	Põhjalaius (WGS84)	Idapikkus (WGS84)
A	58.19167 °N	21.49167 °E
B	58.12500 °N	21.55833 °E
I	58.11667 °N	21.82500 °E

3. Proovivõtuseade: Van Veen'i settekoop (haardepindala 0.1 m²)

4. Jaamade kaart:

