

Analytical report on the analysis of wastewater samples according to the ZDHC wastewater guidelines (Version 2.1, November 2022)

Sample Description	
	Wastewater (Before treatment)
Sampling time:	10:00 AM - 4:00 PM
Cross check sample taken by customer	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
State of sample / Odour at sampling:	
Colour impression:	Dark Red
Odour:	Slight Odour

Analytical report on the analysis of sludge samples according to ZDHC (Version 2.1, November 2022)

Sample Description	
	Sludge
Sampling time:	10:00 AM - 4:00 PM
Cross check sample taken by customer	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
State of sample / Odour at sampling:	
Colour impression:	Black
Odour:	Slight Odour

Picture of sampling point



ETP Plant



Sampling point of untreated Wastewater (GPS location: Latitude 23.919148, Longitude: 90.387781)

Picture of Document





Sampling point of treated Wastewater (GPS location: Latitude 23.919148, Longitude: 90.387781)

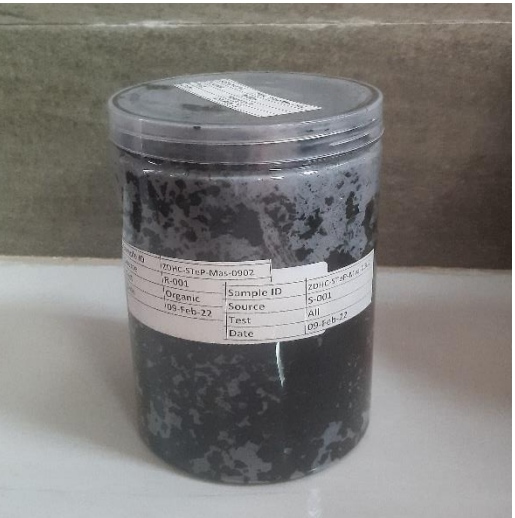



Sludge Bed (GPS location: Latitude 23.919148, Longitude: 90.387781)

Picture of Samples:

	
<p>Untreated (Inlet) Wastewater</p>	<p>Outlet (Treated) Sample</p>

Picture of Samples:

 <table border="1" data-bbox="293 1370 549 1464"><tr><td>Sample ID</td><td>2019C5-08-001</td></tr><tr><td>Organic</td><td>Sample ID</td></tr><tr><td>Source</td><td>S:001</td></tr><tr><td>Test</td><td>All</td></tr><tr><td>Date</td><td>09 Feb 22</td></tr></table>	Sample ID	2019C5-08-001	Organic	Sample ID	Source	S:001	Test	All	Date	09 Feb 22	
Sample ID	2019C5-08-001										
Organic	Sample ID										
Source	S:001										
Test	All										
Date	09 Feb 22										
<p>Sludge Sample Picture</p>	<p>Sample preservation</p>										

ANALYTICAL TEST REPORT

Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs) (for wastewater)					
Method:		DIN EN ISO 18254-1/ DIN EN ISO 18857-2 (modified LC-MS/MS determination)			
LOQ:		0.5 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (freshwater)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Nonylphenol (NP), mixed isomers	104-40-5	5 µg/L	-:	n.d	-:
	11066-49-2		-:	n.d	-:
	25154-52-3		-:	n.d	-:
	84852-15-3		-:	n.d	-:
Octylphenol (OP), mixed isomers	140-66-9		-:	n.d	-:
	1806-26-4		-:	n.d	-:
	27193-28-8		-:	n.d	-:
Octylphenol ethoxylates (OPEO)	9002-93-1		-:	n.d	-:
	9036-19-5		-:	n.d	-:
	68987-90-6		-:	n.d	-:
Nonylphenol ethoxylates (NPEO)	9016-45-9		-:	n.d	-:
	26027-38-3		-:	n.d	-:
	37205-87-1		-:	n.d	-:
	68412-54-4		-:	n.d	-:
	127087-87-0		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs) (for Sludge)						
Method:		DIN EN ISO 18254-1/ DIN EN ISO 18857-2 (LC-MS/MS determination)				
LOQ:		0.4 mg/kg				
Substances	CAS-No.	Reporting Limit	Sample Results			
			03. Sludge			
Nonylphenol (NP), mixed isomers	104-40-5	0.4 mg/kg		n.d		
	11066-49-2			n.d		
	25154-52-3			n.d		
	84852-15-3			n.d		
Octylphenol (OP), mixed isomers	140-66-9				n.d	
	1806-26-4				n.d	
	27193-28-8				n.d	
Octylphenol ethoxylates (OPEO)	9002-93-1				n.d	
	9036-19-5				n.d	
	68987-90-6				n.d	
Nonylphenol ethoxylates (NPEO)	9016-45-9				n.d	
	26027-38-3				n.d	
	37205-87-1				n.d	
	68412-54-4				n.d	
	127087-87-0				n.d	

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

o-Phenylphenol (+salts) (for wastewater)					
Method:		BS EN 12673:1999,ISO 14154:2005; USEPA 8270E Solvent extraction, derivatisation with KOH, acetic anhydride followed by GC-MS/MS			
LOQ:		0.2 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
o-Phenylphenol (+salts)	90-43-7	100 µg/L	-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Triclosan (for wastewater)					
Method:		BS EN 12673-1999 (modified solvent extraction, LC-MS/MS determination)			
LOQ:		0.2 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Triclosan	3380-34-5	100 µg/L	-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Permethrin (for wastewater)					
Method:		ISO 14154 :2005 or solvent extraction without derivatization, LC-MS/MS determination			
LOD:		0.2 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Permethrin	Multiple	500 µg/L	-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Chlorinated Paraffins (for wastewater)					
Method:		SCCP & MCCP: ISO18219-2:2021&ISO 12010:2019 (solvent extraction, GC-NCI-MS/MS determination)			
LOQ:		5 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Middle-chain chlorinated Paraffins (MCCP) (C14-C17)	85535-85-9	5 µg/L	-:	n.d	-:
Short-chain chlorinated Paraffins (SCCP) (C10-C13)	85535-84-8	5 µg/L	-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Chlorobenzenes and Chlorotoluenes (for waste water)					
Method:		Dichloromethane extraction followed by GC-MS/MS			
LOQ:		0.01 µg/l			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Monochlorobenzene	108-90-7	0.2 µg/L	-:	n.d	-:
1,2-Dichlorobenzene	95-50-1		-:	n.d	-:
1,3-Dichlorobenzene	541-73-1		-:	n.d	-:
1,4-Dichlorobenzene	106-46-7		-:	n.d	-:
1,2,3-Trichlorobenzene	87-61-6		-:	n.d	-:
1,2,4-Trichlorobenzene	120-82-1		-:	n.d	-:
1,3,5-Trichlorobenzene	108-70-3		-:	n.d	-:
1,2,3,4-Tetrachlorobenzene	634-66-2		-:	n.d	-:
1,2,3,5-Tetrachlorobenzene	634-90-2		-:	n.d	-:
1,2,4,5-Tetrachlorobenzene	95-94-3		-:	n.d	-:
Pentachlorobenzene	608-93-5		-:	n.d	-:
Hexachlorobenzene	118-74-1		-:	n.d	-:
2-Chlorotoluene	95-49-8		-:	n.d	-:
3-Chlorotoluene	108-41-8		-:	n.d	-:
4-Chlorotoluene	106-43-4		-:	n.d	-:
2,3-Dichlorotoluene	32768-54-0		-:	n.d	-:
2,4-Dichlorotoluene	95-73-8		-:	n.d	-:
2,5-Dichlorotoluene	19398-61-9		-:	n.d	-:
2,6-Dichlorotoluene	118-69-4		-:	n.d	-:
3,4-Dichlorotoluene	95-75-0		-:	n.d	-:
3,5-Dichlorotoluene	25186-47-4	-:	n.d	-:	

2,3,4-Trichlorotoluene	7359-72-0		-:	n.d	-:
2,3,6-Trichlorotoluene	2077-46-5		-:	n.d	-:
2,4,5-Trichlorotoluene	6639-30-1		-:	n.d	-:
2,4,6-Trichlorotoluene	23749-65-7		-:	n.d	-:
3,4,5-Trichlorotoluene	21472-86-6		-:	n.d	-:
2,3,4,5-Tetrachlorotoluene	76057-12-0		-:	n.d	-:
2,3,5,6-Tetrachlorotoluene	29733-70-8		-:	n.d	-:
2,3,4,6-Tetrachlorotoluene	875-40-1		-:	n.d	-:
Pentachlorotoluene	877-11-2		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Chlorotoluenes (for Sludge)					
Method:		Solvent extraction followed by GC-MS/MS (reference method USEPA 3650 & USEPA 827)			
LOQ:		0.05 mg/kg			
Substances	CAS-No.	Reporting Limit	Sample Results		
			03. Sludge		
2-Chlorotoluene	95-49-8	0.2 mg/kg		n.d	
3-Chlorotoluene	108-41-8			n.d	
4-Chlorotoluene	106-43-4			n.d	
2,3-Dichlorotoluene	32768-54-0			n.d	
2,4-Dichlorotoluene	95-73-8			n.d	
2,5-Dichlorotoluene	19398-61-9			n.d	
2,6-Dichlorotoluene	118-69-4			n.d	
3,4-Dichlorotoluene	95-75-0			n.d	
3,5-Dichlorotoluene	25186-47-4			n.d	
2,3,4-Trichlorotoluene	7359-72-0			n.d	
2,3,6-Trichlorotoluene	2077-46-5			n.d	
2,4,5-Trichlorotoluene	6639-30-1			n.d	
2,4,6-Trichlorotoluene	23749-65-7			n.d	
3,4,5-Trichlorotoluene	21472-86-6			n.d	
2,3,4,5-Tetrachlorotoluene	76057-12-0			n.d	
2,3,5,6-Tetrachlorotoluene	29733-70-8			n.d	
2,3,4,6-Tetrachlorotoluene	875-40-1			n.d	
Pentachlorotoluene	877-11-2			n.d	

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Chlorophenols (for wastewater)					
Method:		DIN EN 12673:1999 (Solvent extraction, derivatization with KOH, acetic anhydride followed by GC-MS/MS)			
LOQ:		0.2 µg/l			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
2-Chlorophenol	95-57-8	0.5 µg/L	-:	n.d	-:
3-Chlorophenol	108-43-0		-:	n.d	-:
4-Chlorophenol	106-48-9		-:	n.d	-:
2,3-Dichlorophenol	576-24-9		-:	n.d	-:
2,4-Dichlorophenol	120-83-2		-:	n.d	-:
2,5-Dichlorophenol	583-78-8		-:	n.d	-:
2,6-Dichlorophenol	87-65-0		-:	n.d	-:
3,4-Dichlorophenol	95-77-2		-:	n.d	-:
3,5-Dichlorophenol	591-35-5		-:	n.d	-:
2,3,4-Trichlorophenol	15950-66-0		-:	n.d	-:
2,3,5-Trichlorophenol	933-78-8		-:	n.d	-:
2,3,6-Trichlorophenol	933-75-5		-:	n.d	-:
2,4,5-Trichlorophenol	95-95-4		-:	n.d	-:
2,4,6-Trichlorophenol	88-06-2		-:	n.d	-:
3,4,5-Trichlorophenol	609-19-8		-:	n.d	-:
2,3,4,5-Tetrachlorophenol	4901-51-3		-:	n.d	-:
2,3,4,6-Tetrachlorophenol	58-90-2		-:	n.d	-:

2,3,5,6- Tetrachlorophenol	935-95-5		-:	n.d	-:
Pentachlorophenol	87-86-5		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

N,N-di-methylformamide (DMFa) (for wastewater)					
Method:		EPA 8015, EPA 8270E (Analysis by GC-MS/MS)			
LOQ:		0.5 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Dimethyl formamide. N, N-dimethylformamide (DMFa)	68-12-2	1000 µg/L	-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Carcinogenic Dyes (for wastewater)					
Method:		Liquid extraction, HPLC-MS/MS determination			
LOQ:		0.1 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Basic violet 3 with >0.1% of Michler´s Ketoneb	548-62-9	500 µg/L	-:	n.d	-:
C.I. Acid Red 26	3761-53-3		-:	n.d	-:
C.I. Acid Violet 49	1694-09-3		-:	n.d	-:
C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)	2580-56-5		-:	n.d	-:
C.I. Basic Green 4 (Malachite Green Chloride)	569-64-2		-:	n.d	-:
C.I. Basic Green 4 (Malachite Green Oxalate)	2437-29-8		-:	n.d	-:
C.I. Basic Green 4 (Malachite Green chloride)	10309-95-2		-:	n.d	-:
C.I. Basic Red 9	569-61-9		-:	n.d	-:
C.I. Basic Violet 14	632-99-5		-:	n.d	-:
C.I. Direct Black 38	1937-37-7		-:	n.d	-:
C.I. Direct Blue 6	2602-46-2		-:	n.d	-:
C.I. Direct Red 28	573-58-0		-:	n.d	-:
C.I. Disperse Blue 1	2475-45-8		-:	n.d	-:
C.I. Disperse Blue 3	2475-46-9		-:	n.d	-:
Disperse Orange 11	82-28-0		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Disperse Dyes (for wastewater)					
Method:		Liquid extraction, HPLC-MS/MS determination			
LOQ:		0.1 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (freshwater)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Disperse Blue 102	12222-97-8	50 µg/L	-:	n.d	-:
Disperse Blue 106	12223-01-7		-:	n.d	-:
Disperse Blue 124	61951-51-7		-:	n.d	-:
Disperse Blue 26	3860-63-7		-:	n.d	-:
Disperse Blue 35	12222-75-2		-:	n.d	-:
Disperse Blue 35	56524-77-7		-:	n.d	-:
Disperse Blue 7	3179-90-6		-:	n.d	-:
Disperse Brown 1	23355-64-8		-:	n.d	-:
Disperse Orange 1	2581-69-3		-:	n.d	-:

Disperse Orange 3	730-40-5		-:	n.d	-:
Disperse Orange 37/59/76	13301-61-6		-:	n.d	-:
Disperse Red 1	2872-52-8		-:	n.d	-:
Disperse Red 11	2872-48-2		-:	n.d	-:
Disperse Red 17	3179-89-3		-:	n.d	-:
Disperse Yellow 1	119-15-3		-:	n.d	-:
Disperse Yellow 3	2832-40-8		-:	n.d	-:
Disperse Yellow 39	12236-29-2		-:	n.d	-:
Disperse Yellow 49	54824-37-2		-:	n.d	-:
Disperse Yellow 9	6373-73-5		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Navy blue colorant (wastewater)					
Method:		Liquid extraction, HPLC-MS/MS determination			
LOQ:		0.1 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Component 1: C ₃₉ H ₂₃ Cl-CrN ₇ O ₁₂ S ₂ Na	118685-33-9	500 µg/L	-:	n.d	-:
Component 2: C ₄₆ H ₃₀ CrN ₁₀ O ₂₀ S ₂₃ Na	Not allocated		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Flame Retardants (wastewater)						
Method:		USEPA 8270E, ISO 22032, USEPA 527 and USEPA 8321B (modified, solvent extraction, GC- MS/MS and LC-MS/MS determination)				
LOQ:		0.5 µg/L				
Substances	CAS-No.	Reporting Limit ZDHC	Sample Results			
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)	
2,2-bis(bromomethyl)- 1,3-propanediol (BBMP)	3296-90-0	25 µg/L	-:	n.d	-:	
Bis(2,3-dibromopropyl) phosphate (BIS)	5412-25-9		-:	n.d	-:	
Decabromodiphenyl ether (DecaBDE)	1163-19-5		-:	n.d	-:	
Hexabromocyclodecane (HBCDD)	3194-55-6		-:	n.d	-:	
Octabromodiphenyl ether (OctaBDE)	32536-52-0		-:	n.d	-:	
Pentabromodiphenyl ether (PentaBDE)	32534-81-9		-:	n.d	-:	
Polybromobiphenyls (PBB)	59536-65-1		-:	n.d	-:	
Tetrabromobisphenol A (TBBPA)	79-94-7		-:	n.d	-:	
Tris-(2-chloro-1-methylethyl) phosphate (TCPP)	13674-84-5		-:	n.d	-:	
Tris(1-aziridinyl) phosphine oxide (TEPA)	545-55-1		-:	n.d	-:	
Tris(1,3-dichloro-isopropyl) phosphate (TDCP)	13674-87-8		-:	n.d	-:	
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8		-:	n.d	-:	
Tris(2,3,-dibromopropyl)- phosphate (TRIS)	126-72-7		-:	n.d	-:	
Decabromobiphenyl (DecaBB)	13654-09-6		-:	n.d	-:	
Dibromobiphenyls (DiBB)	Multiple		-:	n.d	-:	
Octabromobiphenyls (OctaBB)	Multiple		-:	n.d	-:	
Dibromopropylether	21850-44-2		-:	n.d	-:	
Heptabromodiphenyl ether (HeptaBDE)	68928-80-3		-:	n.d	-:	
Hexabromodiphenyl ether (HexaBDE)	36483-60-0		-:	n.d	-:	
Monobromobiphenyls (MonoBB)	Multiple		-:	n.d	-:	
Monobromodiphenylethers (MonoBDEs)	Multiple		-:	n.d	-:	
Nonabromobiphenyls (NonaBB)	Multiple		-:	n.d	-:	
Nonabromodiphenyl ether (NonaBDE)	63936-56-1		-:	n.d	-:	
Tetrabromodiphenyl ether (TetraBDE)	40088-47-9		-:	n.d	-:	
Tribromodiphenylethers (TriBDEs)	Multiple		-:	n.d	-:	

LOQ: Limit of Quantitation; - : test not conducted; n.d.: not determinable (below LOQ)

Glycols (for wastewater)					
Method:		USEPA 8270E (modified: Liquid extraction SPE enrichment, GC-MS determination)			
LOQ:		6.0 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
2-ethoxyethanol	110-80-5	50 µg/L	-:	n.d	-:
2-ethoxyethyl Acetate	111-15-9		-:	n.d	-:
2-methoxyethanol	109-86-4		-:	n.d	-:
2-methoxyethylacetate	110-49-6		-:	n.d	-:
2-methoxypropylacetate	70657-70-4		-:	n.d	-:
Bis(2-methoxyethyl) ether	111-96-6		-:	n.d	-:
Ethylene glycol dimethyl ether	110-71-4		-:	n.d	-:
Triethylene glycol dimethyl ether	112-49-2		-:	n.d	-:

LOQ: Limit of Quantitation; - : test not conducted; n.d.: not determinable (below LOQ)

Halogenated Solvents (for wastewater)					
Method:		USEPA 8260D (Headspace GC-MS)			
LOQ:		1.0 µg/L (wastewater)			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
1,2-Dichloroethane	107-06-2	1 µg/L	-:	n.d	-:
Methylene chloride	75-09-2		-:	n.d	-:
Tetrachloroethylene	127-18-4		-:	n.d	-:
Trichloroethylene	79-01-6		-:	n.d	-:

LOQ: Limit of Quantitation; - : test not conducted; n.d.: not determinable (below LOQ)

Organotin Compounds (for wastewater)					
Method:		DIN EN ISO 17353 (solvent extraction, GC-MS/MS determination)			
LOQ:		0.01 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Dipropyltin compounds (DPT)	Multiple	0.01 µg/L	-:	n.d	-:
Mono-, di- and tri-butyltin derivatives			-:	n.d	-:
Mono-, di- and tri-methyltin derivatives			-:	n.d	-:
Mono-, di- and tri-octyltin derivatives			-:	n.d	-:
Mono-, di- and tri-phenyltin derivatives			-:	n.d	-:
Tetrabutyltin compounds (TeBT)			-:	n.d	-:
Tripropyltin Compounds (TPT)			-:	n.d	-:
Tetraoctyltin compounds (TeOT)			-:	n.d	-:
Tricyclohexyltin (TCyHT)			-:	n.d	-:
Tetraethyltin Compounds (TeET)			-:	n.d	-:

LOQ: Limit of Quantitation; - : test not conducted; n.d.: not determinable (below LOQ)

Other/Miscellaneous chemicals (for wastewater)					
Method:		Liquid extraction, LC-MS/MS / ICP-MS (For total Boron & Zinc)			
LOQ:		0.10 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
AEAA [2-(2-aminoethylamino) ethanol]	111-41-1	500 µg/L	-:	n.d	-:
Bisphenol A	80-05-7	10 µg/L	-:	n.d	-:
Thiourea	62-56-6	50 µg/L	-:	n.d	-:

Quinoline	91-22-55	50 µg/L	-:	n.d	-:
Borate, zinc salt*	12767-90-7	100 µg/L	-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)
* Limit refers to boron and zinc individually, not the salt.

Perfluorinated and Polyfluorinated Chemicals (PFCs) (for wastewater)					
Method:		EN 12673-1999; EPA 8270) PFCs: LC-MSMS; FTOH: GCMS/MS			
LOQ:		0.01 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Perfluorooctane sulfonate (PFOS) and related substances, Perfluorooctanoic acid (PFOA)	Multiple	0.01 µg/L	-:	n.d	-:
Perfluorooctanoic acid (PFOA) related substances		1 µg/L	-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Phthalates (for wastewater)					
Method:		ISO 18856 (modified: solvent extraction, GC-MS/MS determination)			
LOQ:		0.5 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
1,2-benzenedicarboxylic acid, di-C6-8 branched and linear alkyl esters, C7-rich (DIHP)	71888-89-6 84777-06-0	10 µg/L	-:	n.d	-:
1,2-benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters (DHNUP)	68515-42-4 68515-50-4		-:	n.d	-:
Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8		-:	n.d	-:
Butyl benzyl phthalate (BBP)	85-68-7		-:	n.d	-:
Di-cyclohexyl phthalate (DCHP)	84-61-7		-:	n.d	-:
Di-iso-decyl phthalate (DIDP)	26761-40-0		-:	n.d	-:
Di-iso-octyl phthalate (DIOP)	27554-26-3		-:	n.d	-:
Di-isobutyl phthalate (DIBP)	84-69-5		-:	n.d	-:
Di-isononyl phthalate (DINP)	28553-12-0		-:	n.d	-:
Di-n-hexyl phthalate (DnHP)	84-75-3		-:	n.d	-:
Di-n-octyl phthalate (DNOP)	117-84-0		-:	n.d	-:
Di-n-pentylphthalates	131-18-0		-:	n.d	-:
Di-n-propyl phthalate (DPRP)	131-16-8		-:	n.d	-:
Di(ethylhexyl) phthalate (DEHP)	117-81-7		-:	n.d	-:
Dibutyl phthalate (DBP)	84-74-2		-:	n.d	-:
Diethyl phthalate (DEP)	84-66-2		-:	n.d	-:
Diisopentylphthalates	605-50-5		-:	n.d	-:
Dinonyl phthalate (DNP)	84-76-4		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Polycyclic Aromatic Hydrocarbons (PAHs) (for wastewater)					
Method:		USEPA 8270E, DIN 38407-39 Solvent extraction, GC-MS/MS determination			
LOQ:		0.01 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Acenaphthene	83-32-9	1 µg/L	-:	n.d	-:
Acenaphthylene	208-96-8		-:	n.d	-:
Anthracene	120-12-7		-:	n.d	-:

Benzo[a]anthracene	56-55-3	-	n.d	-
Benzo[a]pyrene (BaP)	50-32-8	-	n.d	-
Benzo[b]fluoranthene	205-99-2	-	n.d	-
Benzo[e]pyrene	192-97-2	-	n.d	-
Benzo[ghi]perylene	191-24-2	-	n.d	-
Benzo[j]fluoranthene	205-82-3	-	n.d	-
Benzo[k]fluoranthene	207-08-9	-	n.d	-
Chrysene	218-01-9	-	n.d	-
Dibenz[a,h]anthracene	53-70-3	-	n.d	-
Fluoranthene	206-44-0	-	n.d	-
Fluorene	86-73-7	-	n.d	-
Indeno[1,2,3-c,d] pyrene	193-39-5	-	n.d	-
Naphthalene	91-20-3	-	n.d	-
Phenanthrene	85-01-8	-	n.d	-
Pyrene	129-00-0	-	n.d	-

LOQ: Limit of Quantitation; - : test not conducted; n.d.: not determinable (below LOQ)

Polycyclic Aromatic Hydrocarbons (PAHs) (for Sludge)			
Method:		USEPA 3550 (solvent extraction, GC-MS/MS)	
LOQ:		0.05 mg/kg	
Substances	CAS-No.	Reporting Limit	Sample Results
			03. Sludge
Acenaphthene	83-32-9	0.2 mg/kg	n.d
Acenaphthylene	208-96-8		n.d
Anthracene	120-12-7		n.d
Benzo[a]anthracene	56-55-3		n.d
Benzo[a]pyrene (BaP)	50-32-8		n.d
Benzo[b]fluoranthene	205-99-2		n.d
Benzo[e]pyrene	192-97-2		n.d
Benzo[ghi]perylene	191-24-2		n.d
Benzo[j]fluoranthene	205-82-3		n.d
Benzo[k]fluoranthene	207-08-9		n.d
Chrysene	218-01-9		n.d
Dibenz[a,h]anthracene	53-70-3		n.d
Fluoranthene	206-44-0		n.d
Fluorene	86-73-7		n.d
Indeno[1,2,3-cd]pyrene	193-39-5		n.d
Naphthalene	91-20-3		n.d
Phenanthrene	85-01-8		n.d
Pyrene	129-00-0	n.d	

LOQ: Limit of Quantitation; - : test not conducted; n.d.: not determinable (below LOQ)

Aromatic amines (Azo) (for wastewater)					
Method:		Reduction step with sodium dithionite, solvent extraction EPA 8270 (both modified; HPLC-MS/MS determination)			
LOQ:		0.05 µg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
2-naphthylamine	91-59-8	0.1 µg/L	-	n.d	-
2-Naphthylammoniumacetate	553-00-4		-	n.d	-
2,4-xylidine	95-68-1		-	n.d	-
2,4,5-trimethylaniline	137-17-7		-	n.d	-
2,4,5-trimethylaniline hydrochloride	21436-97-5		-	n.d	-
2,6-xylidine	87-62-7		-	n.d	-
3,3'-dichlorobenzidine	91-94-1		-	n.d	-
3,3-dimethoxybenzidine	119-90-4		-	n.d	-
3,3-dimethylbenzidine	119-93-7		-	n.d	-

4-aminoazobenzene	60-09-3		-:	n.d	-:
4-aminodiphenyl	92-67-1		-:	n.d	-:
4-chloro-o-toluidine	95-69-2		-:	n.d	-:
4-chloro-o-toluidinium chloride	3165-93-3		-:	n.d	-:
4-chloroaniline	106-47-8		-:	n.d	-:
4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate	39156-41-7		-:	n.d	-:
4-methoxy-m-phenylenediamine	615-05-4		-:	n.d	-:
4-methyl-m-phenylenediamine	95-80-7		-:	n.d	-:
4,4-methylene-bis-(2-chloro-aniline)	101-14-4		-:	n.d	-:
4,4-methylenedi-o-toluidine	838-88-0		-:	n.d	-:
4,4-methylenedianiline	101-77-9		-:	n.d	-:
4,4-oxydianiline	101-80-4		-:	n.d	-:
4,4-thiodianiline	139-65-1		-:	n.d	-:
5-nitro-o-toluidine	99-55-8		-:	n.d	-:
6-methoxy-m-toluidine	120-71-8		-:	n.d	-:
Benzidine	92-87-5		-:	n.d	-:
o-aminoazotoluene	97-56-3		-:	n.d	-:
o-anisidine	90-04-0		-:	n.d	-:
o-toluidine	95-53-4		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

UV Absorbers (for wastewater)					
Method:		USEPA 8270 ISO 22032, USEPA 527 and USEPA 8321B. (Dichloromethane extraction, GC-MS/MS)			
LOQ:		0.05 mg/L			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl) phenol (UV-350)	36437-37-3	100 µg/L	-:	n.d	-:
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1		-:	n.d	-:
2-benzotriazol-2-yl-4,6-di-tertbutylphenol (UV-320)	3846-71-7		-:	n.d	-:
2,4-Di-tert-butyl-6-(5-chlorobenzotriazole-2-yl) phenol (UV-327)	3864-99-1		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Volatile Organic Compounds (VOC) (for wastewater)					
Method:		ISO 20595 (Headspace GC-MS)			
LOQ:		1.0 µg/L (wastewater)			
Substances	CAS-No.	Reporting Limit	Sample Results		
			Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Benzene	71-43-2	1 µg/L	-:	n.d	-:
m-cresol	108-39-4		-:	n.d	-:
o-cresol	95-48-7		-:	n.d	-:
p-cresol	106-44-5		-:	n.d	-:
Xylene	1330-20-7		-:	n.d	-:
Toluene	108-88-3		-:	n.d	-:

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Heavy Metals parameters: (Wastewater)								
Metals	Method	LOQ	Limit values according to ZDHC wastewater guidelines (mg/L unless otherwise noted)			Sample Results [mg/L]		
			Cat. I (Foundational)	Cat. II (Progressive)	Cat. III (Aspirational)	Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Antimony (Sb)	ISO 17294	0.001 mg/L	0.1	0.05	0.01	-:	-:	n.d
Chromium (Cr)		0.001 mg/L	0.2	0.1	0.05	-:	-:	n.d
Cobalt (Co)		0.001 mg/L	0.05	0.02	0.01	-:	-:	n.d
Copper (Cu)		0.001 mg/L	1	0.5	0.25	-:	-:	n.d
Nickel (Ni)		0.001 mg/L	0.2	0.1	0.05	-:	-:	n.d
Silver (Ag)		0.001 mg/L	0.1	0.05	0.005	-:	-:	n.d
Zinc (Zn)		0.001 mg/L	5.0	1.0	0.5	-:	-:	0.286
Arsenic (As)		0.001 mg/L	0.05	0.01	0.005	-:	-:	n.d
Cadmium (Cd)		0.0001 mg/L	0.1	0.05	0.01	-:	-:	n.d
Lead (Pb)		0.001 mg/L	0.1	0.05	0.01	-:	-:	0.02
Mercury (Hg)		0.00002 mg/L	0.01	0.005	0.001	-:	-:	n.d
Barium		0.001 mg/L	No limit			-:	-:	0.054
Selenium		0.001 mg/L				-:	-:	n.d
Tin		0.001 mg/L				-:	-:	n.d
Boron (Salt)		0.001 mg/L				-:	-:	n.d
Total-Phosphorus		0.10 mg/L	3 mg/L	0.5 mg/L	0.1 mg/L	-:	-:	n.d
Chromium VI	ISO 18412	0.001 mg/L	0.05	0.005	0.001	-:	-:	n.d

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Heavy Metals parameters: (Sludge)*				
Metals	Method	LOQ (mg/kg)	Reporting Limit	Sample Results
				03. Sludge
Arsenic (As)	Preparation: EPA 3050 Analysis: EPA6010D or EPA 6020B	0.05 mg/kg	5 mg/kg	n.d
Cadmium (Cd)		0.05 mg/kg	1 mg/kg	n.d
Lead (Pb)		0.05 mg/kg	5 mg/kg	3.86
Nickel		0.05 mg/kg	20 mg/kg	3.96
Antimony (Sb)		0.05 mg/kg	5 mg/kg	2.38
Barium		0.05 mg/kg	200 mg/kg	15.36
Cobalt (Co)		0.05 mg/kg	400 mg/kg	n.d
Copper (Cu)		0.05 mg/kg	50 mg/kg	41.22
Selenium		0.05 mg/kg	5 mg/kg	n.d
Silver		0.05 mg/kg	50 mg/kg	n.d
Total chromium		0.05 mg/kg	50 mg/kg	10.5
Zinc		0.05 mg/kg	400 mg/kg	102.36
Chromium (VI)		5 mg/kg	20 mg/kg	n.d
Mercury	EPA 7473,7471b Preparation: EPA 3051a, Analysis: EPA 6020B	0.05 mg/kg	1 mg/kg	n.d

*Since Metal and cyanide values are less than the threshold limit table 4B, laboratory checked table 4C for conventional & MRSL parameters relevant to the disposal pathway the supplier selected meet(s) the limit value.

Conventional parameters								
Conventional parameters	Method	LOQ	Limit values according to (ZDHC Version 2.1, November 2022) Wastewater guideline (mg/L unless otherwise noted)			Sample Results [mg/L]		
			Cat. I (Foundational)	Cat. II (Progressive)	Cat. III (Aspirational)	Inlet (fresh water)	01. Inlet Before Treatment	02. Outlet Wastewater (After treatment)
Temperature [°C]	DIN 38404-4	n.a.	Δ+15	Δ+10	Δ+5	-:	-:	Δ+6.2
Total suspended solids (TSS)	ISO 11923	4 mg/L	50	15	5	-:	-:	37
COD	ISO 6060 and ISO 15705	4 mg/L	150	80	40	-:	-:	39
Total-N	ISO 11905-Part 1 ISO 29441	0.5 mg/L	20	10	5	-:	-:	6.73
pH value	ISO 10523	n.a.	6-9			-:	-:	8.12
Colour (436 nm)	ISO 7887-B	n.a.	7	5	2	-:	-:	5.6
Colour (525 nm)		n.a.	5	3	1	-:	-:	4.92
Colour (620 nm)		n.a.	3	2	1	-:	-:	2.21
BOD ₅	ISO 5815-1	1 mg/L	30	15	8	-:	-:	17
Ammonium-N	ISO 11732 and ISO 7150	0.01 mg/L	10	1	0.5	-:	-:	3.97
AOX	HACH LCK 390	0.05 mg/L	3	0.5	0.1	-:	-:	0.842
HEM (Oil and Grease)	ISO 9377-2	0.5 mg/L	10	2	0.5	-:	-:	3.0
Total Phenol	ISO 6439	0.001 mg/L	0.5	0.01	0.001	-:	-:	n.d
Total Dissolved Solid (TDS)	USEPA 160.1	1.0 mg/L	to be tested			-:	-:	1666
Wastewater Flowrate	-	15m ³ per day	to be tested			-:	-:	833 m ³ per day
Persistent Foam	-	n.a	Not visible			-:	-:	Not visible
Dissolved Oxygen (DO)	EPA 360.1 SM 4500-O-G	n.a	to be tested			-:	-:	6.0
Total chlorine	ISO 7393-2	n.a	to be tested			-:	-:	0.82

Conventional Parameters (E.coli in wastewater)								
Conventional parameters	Method	LOQ	Limit values according to ZDHC wastewater guidelines (mg/L unless otherwise noted)			Sample Results [mg/L]		
			Inlet (fresh water)	01. Before Treatment	02. Outlet Wastewater (After treatment)			
*E.coli	SM 9222D presumptive, confirm positive with SM9222G	100 MPN/ 100 mL	126 MPN/ 100 mL			-:	-:	n.d

-: test not conducted; n.d.: not determinable * Note: Test Subcontract at ISO 17025:2017 Accredited Lab.

Anions (in wastewater)								
Anions	Method	LOQ	Limit values according to ZDHC wastewater guideline (mg/L unless otherwise noted)			Sample Results [mg/L]		
			Cat. I (Foundational)	Cat. II (Progressive)	Cat. III (Aspirational)	Inlet (fresh water)	01. Inlet Wastewater (Before treatment)	02. Outlet Wastewater (After treatment)
Cyanide	ISO 6703-1,-2,-3, LCK315 Cyanide Cuvette test	0.01 mg/L	0.2	0.1	0.05	-	-	0.065
Chloride	ISO 15923-1	-	-	-	-	-	-	55.73
Sulfide	ISO 10530	0.01 mg/L	0.5	0.05	0.01	-	-	0.37
Sulfate	ISO 15923-1	2.0 mg/L	-	-	-	-	-	67.87
Sulfite	SM 4500-SO32-C	0.1 mg/L	2	0.5	0.2	-	-	1.94

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Conventional parameters: (sludge)*				
Conventional parameters	Method	LOQ	Reporting Limit	03. Sludge
pH	EPA SW 9045D	n.a.	n.a.	7.9
Paint Filter Test	EPA SW-846 or EPA 9095B	n.a.	n.a.	The free-standing liquid is not observed
Fecal Coliform*	EPA 1681	100 MPN/g	n.a.	2600
% Solids	EPA 160.3, HJ613 at 105 °C	n.a.	n.a.	47.7

* Note: Test Subcontract at ISO 17025:2017 Accredited Lab. LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

Conventional parameters: (sludge)*				
Anions	Method	LOQ	Reporting Limit	03. Sludge
Cyanide*	USEPA 9013, HJ745, EPA 9014 or EPA 9213	0.2 mg/kg	20 mg/kg	0.052

LOQ: Limit of Quantitation; -: test not conducted; n.d.: not determinable (below LOQ)

* Since Metal and cyanide values less than the threshold limit table 4B, the laboratory checked table 4C for conventional & MRSL parameters relevant to the disposal pathway the supplier selected meet(s) the limit value.

Dhaka, Bangladesh, 25.01.2023

Head of Textile & Chemical Testing



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S.M. Imam Uddin

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