

SOFTLINES WASTEWATER TESTING

TEST REPORT

Number: BKKT21014153

Date of sampling	16/11/2021
Reporting Date	29/11/2021

Audit ID	106082	Audit firm	INTERTEK - THAILAND
Company name	NAN YANG KNITTING FACTORY CO., LTD.		
Contact person	Miss Anchana		
Type of tax - tax ID no	0105515005481		
Address	19 Moo 5, Setthakij 1 Road, Tamai		
Region state province	Samut Sakorn		
Town city / village	Kratoombear		
Zip/Post code	74110		

Type of wastewater discharge	
Type of waste discharge	Direct Discharge
Description of the discharge	Wet facility type: Fabric Dyeing, Finishing, Printing
[If direct discharge] ambient temperature of receiving water body:	30.1°C

Sampler accreditation certification number (ZDHC):	8F146506811		
Sample description			
Sample description	Simple	Composite	Comments
(1) Wastewater before treatment	[Purple, grab sample at 10:00]	-	-
(2) Wastewater after treatment	[Brown, grab sample at 10:30]	-	-

Local Legal Data	
Local Legal Standard name [a]	Industrial Effluent Standards Notification of the Ministry of Industry B.E. 2560 (2017)
Parameters (ZDHC WWG V1.1, Table 1A-1B) exceeded local regulation:	No Exceeded
Discharge permit provided:	Yes
Discharge flow data	-

Internal description – Intertek Lab Issuing Final Test Report	
Internal codification number	BKKT21014153
Reference sample number	BKKT21014153
Received on	16/11/2021
Analysis carried out from	16/11/2021 to 22/11/2021
Arrival Temperature at Lab	4.6°C
Comments	-
Reporting date	29/11/2021

Internal description – Intertek Subcontracted Lab	
Internal codification number	VNMT21047374
Reference sample number	BKKT21014153
Received on	17/11/2021
Analysis carried out from	17/11/2021 to 29/11/2021
Arrival Temperature at Lab	8.8°C
Comments	-
Reporting date	29/11/2021

Summary of test results		
Test items (S)	Sample 1 (Before treatment)	Sample 2 (After treatment)
Global effluent parameters ZDHC		D
Heavy metals		D
Alkylphenols (APs) & Alkylphenol ethoxylates (APEOs)	ND	
Chlorobenzenes & Chlorotoluenes	ND	
Chlorophenols	ND	
Azo dyes	ND	
Carcinogenic dyes	ND	
Disperse dyes	ND	
Brominated flame retardants	ND	
Chlorinated flame retardants	ND	
Short chain chlorinated paraffins (SCCPs) (C10-C13)	ND	
Glycols	ND	
Chlorinated solvents	ND	
Organotin compounds	ND	
Phthalates	ND	
Perfluorinated chemicals (PFCs)	ND	
Polycyclic aromatic hydrocarbons (PAHs)	ND	
VOCs	ND	

Remark (Indicated in each parameter)

ND = Not detected

D = Detected

* = See remark

@ = Maximum holding time exceeded,
 red flag in the ZDHC Gateway – Wastewater Module.
 Probable error in results due to the holding time.

NA = Not applicable

- = Did not perform

(f)= parameter tested in field

(T)= handling temperature exceeded

(S) = The samples were subcontracted to Intertek [Vietnam] for Testing

= Non accredited parameter

[a] = The local legal standard name and legal standard no. is referenced to discharge permit (or contractual agree by CETP) that provided by company.

This report shown the test result of the environment samples of above factory which collected on specific date and time. The results of this report shall not be used for any regulatory compliance purposes.

Authorized By:

For Intertek Testing Service (Thailand)



Thanate Khongyai
 Operation Manager - Softlines

Test results

1. Global effluent parameters

Parameters	Test method (Please refer only to the SM used in the lab)	Limit			Reporting Limit (Please refer to your RL)	Result Sample	Unit
		Foundational	Progressive	Aspirational		After Treatment	
Temperature	GB/T 13195-1991 / EPA 170.1	35°C	30°C	25°C	N/A	30 (f)	°C
TSS(S)	GB/T 11901-1989 / EPA 160.2	50 mg/L	15 mg/L	5 mg/L	5.00	44.0	mg/L
COD	HJ 828-2017 / ISO 6060	150 mg/L	80 mg/L	40 mg/L	16.0	115	mg/L
Total-N(S)	HJ 636-2012 / ISO 5663	20 mg/L	10 mg/L	5 mg/L	1.00	ND	mg/L
pH	GB/T 6920-1986 / EPA 150.1	6-9	6-9	6-9	N/A	8.0 (f)	
Colour [m-1](S)	ISO 7887-B	7;5;3	5;3;2	2;1;1	N/A	1.90;1.60;0.90	
BOD ₅	HJ 505-2009 / APHA 5210	30 mg/L	15 mg/L	5 mg/L	2.00	28.0	mg/L
Ammonium-N(S)	HJ 535-2009 / ISO 11732	10 mg/L	1 mg/L	0.5 mg/L	0.20	ND	mg/L
Total-P(S)	GB/T 11893-1989 / ISO 11885	3 mg/L	0.5 mg/L	0.1 mg/L	0.04	0.38	mg/L
AOX(S)	HJ/T 83-2001 / ISO 9562	5 mg/L	1 mg/L	0.1 mg/L	0.06	0.15	mg/L
Oil and grease(S)	HJ 637-2018 / ISO 9377-2	10 mg/L	2 mg/L	0.5 mg/L	0.50	0.70	mg/L
Phenol(S)	HJ 503-2009 / ISO 14402	0.5 mg/L	0.01 mg/L	0.001 mg/L	0.001	0.005	mg/L
Coliform	GB/T 5750.12-2006 / ISO 9308-1	400 [CFU/100 ml]	100 [CFU/100 ml]	25 [CFU/100 ml]	2 bacterial/100 mL	<1	[CFU/100 ml]
Foam	/	Not visible	Not visible	Not visible	N/A	Not visible (f)	
Cyanide(S)	HJ484-2009 / ISO 6703 / ISO 14403	0.2 mg/L	0.1 mg/L	0.05 mg/L	0.02	ND	mg/L
Sulfide(S)	GB/T 16489-1996 / APHA 4500-S2-D	0.5 mg/L	0.05 mg/L	0.01 mg/L	0.01	ND	mg/L
Sulfite(S)	HJ 84-2016 / USEPA 377.1 SM 4500 SO3	2 mg/L	0.5 mg/L	0.2 mg/L	0.20	ND	mg/L
Conductivity (*) (S)	EPA 120.1	N/A	N/A	N/A	1.00	1939	µS/cm

(*) Not included in ZDHC Guidelines V 1.1.

2. Heavy metals(S)

With reference to ISO 11885, ISO 18412, ISO 12846, ISO 17852, US EPA 200.7, US EPA 200.8, US EPA 6010c, US EPA 6020a, US EPA 218.6 and by Inductively Coupled Argon Plasma-Mass Spectrometry (ICP-MS) analysis.

Heavy metals	CAS no.	Limit			Reporting limit (mg/L) (Please refer only to the RL in your lab)	Result Sample 2 (After treatment)	Unit
		Foundational	Progressive	Aspirational			
Arsenic (As)	Various	0.05 mg/L	0.01 mg/L	0.005 mg/L	0.001	0.0027	mg/L
Cadmium (Cd)	Various	0.1 mg/L	0.05 mg/L	0.01 mg/L	0.0001	0.00033	mg/L
Mercury (Hg)	Various	0.01 mg/L	0.005 mg/L	0.001 mg/L	0.00005	0.00036	mg/L
Lead (Pb)	Various	0.1 mg/L	0.05 mg/L	0.01 mg/L	0.001	0.0095	mg/L
Antimony (Sb)	Various	0.1 mg/L	0.05 mg/L	0.01 mg/L	0.001	0.0793	mg/L
Cobalt (Co)	Various	0.05 mg/L	0.02 mg/L	0.01 mg/L	0.001	ND	mg/L
Nickel (Ni)	Various	0.2 mg/L	0.1 mg/L	0.05 mg/L	0.001	0.0187	mg/L
Silver (Ag)	Various	0.1 mg/L	0.05 mg/L	0.005 mg/L	0.001	ND	mg/L
Copper (Cu)	Various	1 mg/L	0.5 mg/L	0.25 mg/L	0.001	0.0406	mg/L
Zinc (Zn)	Various	5.0 mg/L	1.0 mg/L	0.5 mg/L	0.001	0.2551	mg/L
Total Chromium (Cr)	Various	0.2 mg/L	0.1 mg/L	0.05 mg/L	0.001	0.0089	mg/L
Manganese (Mn) (*)	Various	N/A	N/A	N/A	0.001	0.1189	mg/L
Chromium VI (Cr VI)	Various	0.05 mg/L	0.005 mg/L	0.001 mg/L	0.001	ND	mg/L

(*) Not included in ZDHC Guidelines V 1.1.

Remark

ND = Not detected
 D = Detected
 (f)= parameter tested in field
 @ = Maximum holding time exceeded,
 red flag in the ZDHC Gateway – Wastewater Module.
 Probable error in results due to the holding time.

N/A = Not applicable
 - = Did not perform
 (T)= handling temperature exceeded
 (S) = The samples were subcontracted to Intertek [Vietnam] for Testing

3. Alkylphenols (APs) & AlkylphenolEthoxylates (APEOs)(S)

With reference to ISO 18857-2/ASTM D7065, ISO 18254-1/2, and by Gas Chromatography-Mass Spectrometry (GC-MS) and Liquid Chromatography-tandem Mass Spectrometry (LC-MS-MS) analysis.

Alkylphenols (APs) & Alkylphenolethoxylates (APEOs)	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment)	Unit
Octylphenol (OP)	140-66-9/ 1806-26-4/ 27193-28-8	0.005	ND	ppm
Nonylphenol (NP)	104-40-5/ 11066-49-2/ 25154-52-3/84852-15-3	0.005	ND	ppm
Octylphenoethoxylates (OPEOs)	140-66-9/ 1806-26-4/ 27193-28-8	0.005	ND	ppm
Nonylphenoethoxylates (NPEOs)	9016-45-9/26027-38-3/ 37205-87-1/68412-54-4/127087-87-0	0.005	ND	ppm

4. Chlorobenzenes & Chlorotoluenes(S)

With reference to US EPA 8260B, US EPA 8270D, and by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Chlorobenzenes & Chlorotoluenes	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment)	Unit
Chlorobenzene	108-90-7	0.0002	ND	ppm
1,2-Dichlorobenzene	95-50-1	0.0002	ND	ppm
1,3-Dichlorobenzene	541-73-1	0.0002	ND	ppm
1,4-Dichlorobenzene	106-46-7	0.0002	ND	ppm
1,2,3-Trichlorobenzene	87-61-6	0.0002	ND	ppm
1,2,4-Trichlorobenzene	120-82-1	0.0002	ND	ppm
1,3,5-Trichlorobenzene	108-70-3	0.0002	ND	ppm
1,2,3,4-Tetrachlorobenzene	634-66-2	0.0002	ND	ppm
1,2,3,5-Tetrachlorobenzene	634-90-2	0.0002	ND	ppm
1,2,4,5-Tetrachlorobenzene	95-94-3	0.0002	ND	ppm
Pentachlorobenzene	608-93-5	0.0002	ND	ppm
Hexachlorobenzene	118-74-1	0.0002	ND	ppm
2-Chlorotoluene	95-49-8	0.0002	ND	ppm
3-Chlorotoluene	108-41-8	0.0002	ND	ppm
4-Chlorotoluene	106-43-4	0.0002	ND	ppm
2,3-Dichlorotoluene	32768-54-0	0.0002	ND	ppm
2,4-Dichlorotoluene	95-73-8	0.0002	ND	ppm
2,5-Dichlorotoluene	19398-61-9	0.0002	ND	ppm
2,6-Dichlorotoluene	118-69-4	0.0002	ND	ppm
3,4-Dichlorotoluene	95-75-0	0.0002	ND	ppm
3,5-Dichlorotoluene	25186-47-4	0.0002	ND	ppm
2,3,4-Trichlorotoluene	7359-72-0	0.0002	ND	ppm

2,3,6-Trichlorotoluene	2077-46-5	0.0002	ND	ppm
2,4,5-Trichlorotoluene	6639-30-1	0.0002	ND	ppm
2,4,6-Trichlorotoluene	23749-65-7	0.0002	ND	ppm
3,4,5-Trichlorotoluene	21472-86-6	0.0002	ND	ppm
2,3,4,5-Tetrachlorotoluene	76057-12-0	0.0002	ND	ppm
2,3,5,6-Tetrachlorotoluene	29733-70-8	0.0002	ND	ppm
2,3,4,6-Tetrachlorotoluene	875-40-1	0.0002	ND	ppm
Pentachlorotoluene	877-11-2	0.0002	ND	ppm

5. Chlorophenols(S)

With reference to EPA 8270D and by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Chlorophenols	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment)	Unit
2-Chlorophenol	95-57-8	0.0005	ND	ppm
3-Chlorophenol	108-43-0	0.0005	ND	ppm
4-Chlorophenol	106-48-9	0.0005	ND	ppm
2,3-Dichlorophenol	576-24-9	0.0005	ND	ppm
2,4-Dichlorophenol	120-83-2	0.0005	ND	ppm
2,5-Dichlorophenol	583-78-8	0.0005	ND	ppm
2,6-Dichlorophenol	87-65-0	0.0005	ND	ppm
3,4-Dichlorophenol	95-77-2	0.0005	ND	ppm
3,5-Dichlorophenol	591-35-5	0.0005	ND	ppm
2,3,4-Trichlorophenol	15950-66-0	0.0005	ND	ppm
2,3,5-Trichlorophenol	933-78-8	0.0005	ND	ppm
2,3,6-Trichlorophenol	933-75-5	0.0005	ND	ppm
2,4,5-Trichlorophenol	95-95-4	0.0005	ND	ppm
2,4,6-Trichlorophenol	88-06-2	0.0005	ND	ppm
3,4,5-Trichlorophenol	609-19-8	0.0005	ND	ppm
2,3,4,5-Tetrachlorophenol	4901-51-3	0.0005	ND	ppm
2,3,4,6-Tetrachlorophenol	58-90-2	0.0005	ND	ppm
2,3,5,6-Tetrachlorophenol	935-95-5	0.0005	ND	ppm
Pentachlorophenol (PCP)	87-86-5	0.0005	ND	ppm

6. Azo dyes(S)

With reference to EN 14362-1/3, and by Gas Chromatographic - Mass Spectrometric (GC-MS) or and Liquid Chromatography-tandem Mass Spectrometry (LC-MS-MS) analysis.

Azo Dyes	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment)	Unit
4,4'-Methylene-bis(2-chloroaniline)	101-14-4	0.0001	ND	ppm
4,4'-Diaminodiphenylmethane	101-77-9	0.0001	ND	ppm
4,4'-Oxydianiline	101-80-4	0.0001	ND	ppm
4-Chloroaniline	106-47-8	0.0001	ND	ppm
3,3'-Dimethoxybenzidine	119-90-4	0.0001	ND	ppm
3,3'-Dimethylbenzidine	119-93-7	0.0001	ND	ppm
p-Cresidine	120-71-8	0.0001	ND	ppm
2,4,5-Trimethylaniline	137-17-7	0.0001	ND	ppm
4,4'-Thiodianiline	139-65-1	0.0001	ND	ppm
4-Aminoazobenzene	60-09-3	0.0001	ND	ppm
2,4-Diaminoanisole	615-05-4	0.0001	ND	ppm
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	0.0001	ND	ppm
2,6-Xylidine	87-62-7	0.0001	ND	ppm
o-Anisidine	90-04-0	0.0001	ND	ppm
2-Naphthylamine	91-59-8	0.0001	ND	ppm
3,3'-Dichlorobenzidine	91-94-1	0.0001	ND	ppm
4-Aminobiphenyl	92-67-1	0.0001	ND	ppm
Benzidine	92-87-5	0.0001	ND	ppm
o-Toluidine	95-53-4	0.0001	ND	ppm
2,4-Xylidine	95-68-1	0.0001	ND	ppm
4-Chloro-o-toluidine	95-69-2	0.0001	ND	ppm
2,4-Diaminotoluene	95-80-7	0.0001	ND	ppm
o-Aminoazotoluene	97-56-3	0.0001	ND	ppm
5-Nitro-o-toluidine	99-55-8	0.0001	ND	ppm
Aniline (*)	62-53-3	0.0001	ND	ppm

(*) Not included in ZDHC Guidelines V 1.1.

7. Carcinogenic dyes(S)

By Liquid Chromatography-tandem Mass Spectrometry (LC-MS-MS) analysis.

Carcinogenic dyes	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment)	Unit
C.I. Direct Black 38	1937-37-7	0.5	ND	ppm
C.I. Direct Blue 6	2602-46-2	0.5	ND	ppm
C.I. Acid Red 26	3761-53-3	0.5	ND	ppm
C.I. Basic Red 9	569-61-9	0.5	ND	ppm
C.I. Direct Red 28	573-58-0	0.5	ND	ppm
C.I. Basic Violet 14	632-99-5	0.5	ND	ppm
C.I. Disperse Blue 1	2475-45-8	0.5	ND	ppm
C.I. Disperse Blue 3	2475-46-9	0.5	ND	ppm
C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)	2580-56-5	0.5	ND	ppm
C.I. Basic Green 4 (malachite green chloride)	569-64-2	0.5	ND	ppm
C.I. Basic Green 4 (malachite green oxalate)	2437-29-8	0.5	ND	ppm
C.I. Basic Green 4 (malachite green)	10309-95-2	0.5	ND	ppm
Disperse Orange 11	82-28-0	0.5	ND	ppm

8. Disperse dyes(S)

By Liquid Chromatography-tandem Mass Spectrometry (LC-MS-MS) analysis.

Disperse dyes	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment)	Unit
Disperse Yellow 1	119-15-3	0.05	ND	ppm
Disperse Blue 102	12222-97-8	0.05	ND	ppm
Disperse Blue 106	12223-01-7	0.05	ND	ppm
Disperse Yellow 39	12236-29-2	0.05	ND	ppm
Disperse Orange 37/59/76	13301-61-6	0.05	ND	ppm
Disperse Brown 1	23355-64-8	0.05	ND	ppm
Disperse Orange 1	2581-69-3	0.05	ND	ppm
Disperse Yellow 3	2832-40-8	0.05	ND	ppm
Disperse Red 11	2872-48-2	0.05	ND	ppm
Disperse Red 1	2872-52-8	0.05	ND	ppm
Disperse Red 17	3179-89-3	0.05	ND	ppm
Disperse Blue 7	3179-90-6	0.05	ND	ppm
Disperse Blue 26	3860-63-7	0.05	ND	ppm

Disperse Yellow 49	54824-37-2	0.05	ND	ppm
Disperse Blue 35	12222-75-2	0.05	ND	ppm
Disperse Blue 124	61951-51-7	0.05	ND	ppm
Disperse Yellow 9	6373-73-5	0.05	ND	ppm
Disperse Orange 3	730-40-5	0.05	ND	ppm
Disperse Blue 35	56524-77-7	0.05	ND	ppm

9. Brominated flame retardants(S)

With reference to US EPA 8270, ISO 22032, US EPA 527, EPA 8321B, and by Gas Chromatography - Mass Spectrometry (GC-MS) analysis and Liquid Chromatography-tandem Mass Spectrometry (LC-MS-MS) analysis.

Brominated flame retardants	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment)	Unit
Decabromodiphenyl ether (DecaBDE)	1163-19-5	0.005	ND	ppm
Pentabromodiphenyl ether (PentaBDE)	32534-81-9	0.005	ND	ppm
Octabromodiphenyl ether (OctaBDE)	32536-52-0	0.005	ND	ppm
Tris(1-aziridinylphosphine oxide) (TEPA)	545-55-1	0.005	ND	ppm
Polybromobiphenyls (PBBs)	Various	0.005	ND	ppm
Tris(2,3-dibromopropyl phosphate) (TRIS)	126-72-7	0.005	ND	ppm
Polybromodiphenyl ethers (PBDEs) (*)	Various	0.005	ND	ppm
Tetrabromobisphenol A (TBBPA)	79-94-7	0.005	ND	ppm
Bis(2,3-dibromopropyl) phosphate	5412-25-9	0.005	ND	ppm
Hexabromocyclododecane (HBCDD)	3194-55-6	0.005	ND	ppm
2,2-Bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0	0.005	ND	ppm

(*) Not included in ZDHC Guidelines V 1.1.

10. Chlorinated flame retardants(S)

With reference to US EPA 8270, ISO 22032, US EPA 527, EPA 8321B, and by Gas Chromatography - Mass Spectrometry (GC-MS) analysis and Liquid Chromatography-tandem Mass Spectrometry (LC-MS-MS) analysis.

Chlorinated flame retardants	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment)	Unit
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8	0.005	ND	ppm
Tris(1,3-dichloro-isopropyl) phosphate (TDCP)	13674-87-8	0.005	ND	ppm

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11. Short chain chlorinated paraffins (SCCPs) (C10 – C13) (S)

With reference to US EPA 8270, ISO 22032, US EPA 527, EPA 8321B, and by Gas Chromatography - Mass Spectrometry (GC-MS) analysis and Liquid Chromatography-tandem Mass Spectrometry (LC-MS-MS) analysis.

Short chain chlorinated paraffins (SCCPs) (C10–C13)	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment) (ppm)	Unit
Short chain chlorinated paraffins (SCCPs)	85535-84-8	0.005	ND	ppm

12. Glycols(S)

With reference to US EPA 8270 and by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Glycols	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment) (ppm)	Unit
Bis(2-methoxyethyl)-ether	111-96-6	0.05	ND	ppm
2-ethoxyethanol	110-80-5	0.05	ND	ppm
2-ethoxyethyl acetate	111-15-9	0.05	ND	ppm
Ethylene glycol dimethyl ether	110-71-4	0.05	ND	ppm
2-methoxyethanol	109-86-4	0.05	ND	ppm
2-methoxyethylacetate	110-49-6	0.05	ND	ppm
2-methoxypropylacetate	70657-70-4	0.05	ND	ppm
Triethylene glycol dimethyl ether	112-49-2	0.05	ND	ppm

13. Chlorinated solvents(S)

With reference to US EPA 8260B, and by Headspace Gas Chromatography Mass Spectrometric (HS-GC/MS) analysis.

Chlorinated solvents	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment) (ppm)	Unit
1,2-Dichloroethane	107-06-2	0.001	ND	ppm

Methylene chloride	75-09-2	0.001	ND	ppm
Trichloroethene	79-01-6	0.001	ND	ppm
Tetrachloroethene	127-18-4	0.001	ND	ppm
1,1-Dichloroethylene (*)	75-35-4	0.001	ND	ppm
cis-1,2-Dichloroethylene (*)	156-59-2	0.001	ND	ppm
trans-1,2-Dichloroethylene (*)	156-60-5	0.001	ND	ppm
Chloroform (*)	67-66-3	0.001	ND	ppm
1,1,1-Trichloroethane (*)	71-55-6	0.001	ND	ppm
Carbon tetrachloride (*)	56-23-5	0.001	ND	ppm
1,1,2-Trichloroethane (*)	79-00-5	0.001	ND	ppm
1,1,1,2-Tetrachloroethane (*)	630-20-6	0.001	ND	ppm

(*) Not included in ZDHC Guidelines V 1.1.

14. Organotin compounds(S)

With reference to ISO 17353, and by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Organotin compounds	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment) (ppm)	Unit
Mono-, di- and tri-octyltin derivatives	Various	0.00001	ND	ppm
Dibutyltin (DBT)	Various	0.00001	ND	ppm
Tricyclohexyltin (TCyHT) (*)	Various	0.00001	ND	ppm
Tripropyltin (TPT) (*)	Various	0.00001	ND	ppm
Mono-, di- and tri-methyltin derivatives	Various	0.00001	ND	ppm
Mono-, di- and tri-butyltin derivatives	Various	0.00001	ND	ppm
Mono-, di- and tri-phenyltin derivatives	Various	0.00001	ND	ppm

(*) Not included in ZDHC Guidelines V 1.1.

15. Phthalates(S)

With reference to US EPA 8270, DIN 38407-39 and by Gas Chromatography - Mass Spectrometry (GC-MS) analysis.

Phthalates	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment) (ppm)	Unit
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	0.01	ND	ppm
Dimethoxyethyl phthalate (DMEP)	117-82-8	0.01	ND	ppm
Di-n-octyl phthalate (DNOP)	117-84-0	0.01	ND	ppm

Di-iso-decyl phthalate (DIDP)	26761-40-0/68515-49-1	0.01	ND	ppm
Di-iso-nonyl phthalate (DINP)	28553-12-0/68515-48-0	0.01	ND	ppm
Di-n-hexyl phthalate (DnHP)	84-75-3	0.01	ND	ppm
Dibutyl phthalate (DBP)	84-74-2	0.01	ND	ppm
Butyl benzyl phthalate (BBP)	85-68-7	0.01	ND	ppm
Dinonyl phthalate (DNP)	84-76-4	0.01	ND	ppm
Diethyl phthalate (DEP)	84-66-2	0.01	ND	ppm
Di-n-propyl phthalate (DPRP)	131-16-8	0.01	ND	ppm
Di-iso-butyl phthalate (DIBP)	84-69-5	0.01	ND	ppm
Di-cyclohexyl phthalate (DCHP)	84-61-7	0.01	ND	ppm
Di-iso-octyl phthalate (DIOP)	27554-26-3	0.01	ND	ppm
1,2-benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	0.01	ND	ppm
1,2-benzenedicarboxylic acid, di-C6-11-branched alkyl esters, C7-rich (DIHP)	71888-89-6	0.01	ND	ppm
Dimethyl phthalate (DMP) (*)	131-1-11-3	0.01	ND	ppm

(*) Not included in ZDHC Guidelines V 1.1.

16. Perfluorinated chemicals (PFCs)(S)

With reference to DIN 38407-42 (modified), and Liquid Chromatography-tandem Mass Spectrometry (LC-MS-MS) analysis and Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Perfluorinated chemicals (PFCs)	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment) (ppm)	Unit
Perfluoro-octane-sulfonic acid (PFOS)	432-50-7 1763-23-1 56773-72-3	0.00001	ND	ppm
Perfluoro-hexane-sulfonic acid (PFHxS) (*)	3871-99-6 355-46-41	0.00001	ND	ppm
Perfluoro-octanoic acid (PFOA)	335-67-1	0.00001	ND	ppm
Perfluoro-butane-sulfonic acid (PFBS)	29420-43-3 29420-49-3 375-73-5	0.00001	ND	ppm
Perfluoro-hexanoic acid (PFHxA)	307-24-4	0.00001	ND	ppm
Perfluoro-heptane-sulfonate (PFHpS) (*)	60270-55-5 375-92-8	0.00001	ND	ppm
Perfluoro-decane-sulfonic acid (PFDS) (*)	126105-34-8 335-77-3	0.00001	ND	ppm
Perfluoro-octane-sulfon-amide (PFOSA) (*)	754-91-6	0.00001	ND	ppm
Perfluoro-butanoic acid (PFBA) (*)	375-22-4	0.00001	ND	ppm
Perfluoro-pentanoic acid (PFPeA) (*)	2706-90-3	0.00001	ND	ppm
Perfluoro-heptanoic acid (PFHpA) (*)	375-85-9	0.00001	ND	ppm

Perfluoro-nonanoic acid (PFNA) (*)	375-95-1	0.00001	ND	ppm
Perfluoro-undecanoic acid (PFUdA) (*)	4234-23-5 2058-94-8	0.00001	ND	ppm
Perfluoro-dodecanoic acid (PFDoA) (*)	307-55-1	0.00001	ND	ppm
Perfluoro-tridecanoic acid (PFTrDA) (*)	72629-94-8	0.00001	ND	ppm
Perfluoro-tetradecanoic acid (PFTeDA) (*)	376-06-7	0.00001	ND	ppm
Perfluoro-3-7-dimethyl octane carboxylate (PF-3,7-DMOA) (*)	172155-07-6	0.00001	ND	ppm
7H-Dodecafluoro heptane carboxylate (HPFHpA) (*)	1546-95-8	0.00001	ND	ppm
2H,2H,-Perfluorodecanoic acid (H2PFDA) (*)	-	0.00001	ND	ppm
2H,2H,3H,3H-Perfluoro-undecanoic acid (4HPFUaA) (*)	34598-33-9	0.00001	ND	ppm
1H,1H,2H,2H-Perfluorooctyl acrylate (6:2 FTA) (*)	17527-29-6	0.0001	ND	ppm
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) (*)	27905-45-9	0.0001	ND	ppm
1H,1H,2H,2H-Perfluorododecyl acrylate (10:2 FTA) (*)	17741-60-5	0.0001	ND	ppm
1H,1H,2H,2H-Perfluorohexanol (4:2 FTOH) (*)	2043-47-2	0.001	ND	ppm
1H,1H,2H,2H-Perfluorooctanol (6:2 FTOH)	647-42-7	0.001	ND	ppm
1H,1H,2H,2H-Perfluorodecanol (8:2 FTOH)	678-39-7	0.001	ND	ppm
1H,1H,2H,2H-Perfluorododecanol (10:2 FTOH) (*)	865-86-1	0.001	ND	ppm
N-Methyl-perfluoro-octane-sulfon-amido-ethanol (N-Me-FOSE alcohol) (*)	24448-09-7	0.00001	ND	ppm
N-Ethyl-Perfluoro-octane-sulfon-amido-ethanol (N-Et-FOSE alcohol) (*)	1691-99-2	0.00001	ND	ppm
N-Methyl-perfluoro-octane-sulfon-amide (N-Me-FOSA) (*)	31506-32-8	0.00001	ND	ppm
N-Ethyl-perfluoro-octane-sulfon-amide (N-Et-FOSA) (*)	4151-50-2	0.00001	ND	ppm
Perfluoro-decanoic acid (PFDA) (*)	335-76-2	0.00001	ND	ppm

(*) Not included in ZDHC Guidelines V 1.1.

17. Polycyclic aromatic hydrocarbons (PAHs)(S)

With reference to US EPA 8270, DIN 38407-39 and by Gas Chromatography - Mass Spectrometry (GC-MS) analysis.

Polycyclic aromatic hydrocarbons (PAHs)	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment) (ppm)	Unit
Benzo(a)pyrene (BaP)	50-32-8	0.001	ND	ppm
Anthracene	120-12-7	0.001	ND	ppm
Pyrene	129-00-0	0.001	ND	ppm
Benzo(ghi)perylene	191-24-2	0.001	ND	ppm
Benzo(e)pyrene	192-97-2	0.001	ND	ppm

Indeno (1,2,3-cd)pyrene	193-39-5	0.001	ND	ppm
Benzo(j)fluoranthene	205-82-3	0.001	ND	ppm
Benzo(b)fluoranthene	205-99-2	0.001	ND	ppm
Fluoranthene	206-44-0	0.001	ND	ppm
Benzo(k)fluoranthene	207-08-09	0.001	ND	ppm
Acenaphthylene	208-96-8	0.001	ND	ppm
Chrysene	218-01-9	0.001	ND	ppm
Dibenz(a,h)anthracene	53-70-3	0.001	ND	ppm
Benzo(a)anthracene	56-55-3	0.001	ND	ppm
Acenaphthene	83-32-9	0.001	ND	ppm
Phenanthrene	85-01-8	0.001	ND	ppm
Fluorene	86-73-7	0.001	ND	ppm
Naphthalene	91-20-3	0.001	ND	ppm

18. Volatile organic compounds (VOCs)(S)

With reference to ISO 11423-1, and by Headspace Gas Chromatography Mass Spectrometric (HS-GC/MS) analysis.
With reference to US EPA 8270D, and by Gas Chromatography-Mass Spectrometry (GC-MS) analysis.

Volatile organic compounds (VOCs)	CAS no.	Reporting limit (ppm)	Result Sample 1 (Before treatment) (ppm)	Unit
Benzene	71-43-2	0.001	ND	ppm
Xylene	1330-20-7	0.001	ND	ppm
o-cresol	95-48-7	0.001	ND	ppm
p-cresol	106-44-5	0.001	ND	ppm
m-cresol	108-39-4	0.001	ND	ppm

Remark

ND = Not detected
D = Detected
(f)= parameter tested in field
@ = Maximum holding time exceeded,
red flag in the ZDHC Gateway – Wastewater Module.
Probable error in results due to the holding time.

N/A = Not applicable
- = Did not perform
(T)= handling temperature exceeded
= Non accredited parameter
(S) = The samples were subcontracted to Intertek [Vietnam] for Testing



Photo of sampling area (before treatment)



Photo of sampling point (before treatment)



Photo of sampling area (after treatment)



Photo of sampling point (after treatment)



Photo of facility gate



Incoming water

Testing period: From 16-11-2021 to 22-11-2021

Testing period Subcontracted Lab (if applicable): From 17-11-2021 to 29-11-2021

End of report

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