

**SOFTLINES WASTEWATER TESTING
TEST REPORT (TEXTILES)**

Number: TURA230039906

Report Date: 28/04/2023

Factory's name :	TUSA DENIM SANAYI ve TICARET A.Ş.
Factory's address :	Organize Sanayi Bölgesi, Kurtköy,74100, Merkez/ BARTIN
Type of wastewater discharge:	Indirect discharge
On-site Wastewater treatment plant:	With pretreatment
Avg. total industrial wastewater:	≥ 15m ³ /day
Date of sampling :	11/04/2023
Date of sample arrived laboratory:	12/04/2023
Date of testing:	12/04/2023
Sample type:	
Sample / Incoming water	N/A
Sample / Untreated wastewater	[Black, composite sample at 09:15, 10:15, 11:15, 12:15, 13:15, 14:15] [Sampling location: Latitude 41.56760, Longitude 32.42257]
Sample / Effluent	[Sample colour, composite sample at 09:20, 10:20, 11:20, 12:20, 13:20, 14:20] [Sampling location: Latitude 41.56768, Longitude 32.42242]
Sample / Sludge	[Black, composite sample at 13:00] [Sampling location: Latitude 41.56757, Longitude 32.42247]
Sampling laboratory:	Intertek Turkey
Testing laboratory:	Intertek Turkey
ZDHC sampler accreditation certification number:	C74D106817203

Tests conducted:

As requested by a brand program, for details refer to attached page(s).



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Summary of test results:

Wastewater / MRSL – Test items	Untreated Wastewater
Alkylphenol ethoxylates / Alkylphenols (APEOs/APs)	ND
Anti-Microbials & Biocides	ND
Chlorinated Parafins	ND
Chlorobenzenes and Chlorotoluenes	ND
Chlorophenols	ND
Dimethyl Formamide (DMFa) (*)	ND
Dyes – Carcinogenic or Equivalent Concern	ND
Dyes – Disperse (Allergenic)	ND
Dyes – Navy Blue Colourant	ND
Flame Retardants	D
Glycols / Glycol Ethers	ND
Halogenated solvents	ND
Organotin compounds	ND
Other/Miscellaneous Chemicals	ND
Perfluorinated & Polyfluorinated chemicals (PFCs)	ND
Phthalates (Ortho-phthalates)	ND
Polycyclic aromatic hydrocarbons (PAHs)	ND
Restricted Aromatic Amines (Cleavable from Azo- colourants)	ND
UV Absorbers	ND
Volatile Organic Compounds (VOC)	ND

Wastewater / Heavy metals - Test items	Effluent		
	Foundational	Progressive	Aspirational
Antimony		N/A	
Chromium (VI)			Meet
Barium		N/A	
Selenium		N/A	
Tin		N/A	
Arsenic			Meet
Chromium (total)		N/A	
Cobalt		N/A	
Cadmium			Meet
Copper		N/A	
Lead			Meet
Nickel		N/A	
Silver		N/A	
Zinc		N/A	
Mercury			Meet



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Wastewater / Conventional parameters - Test items	Effluent		
	Foundational	Progressive	Aspirational
pH ^[f]		N/A	
Temperature difference ^[f]		N/A	
E.coli		N/A	
Colour		N/A	
Persistent foam ^[f]		N/A	
Wastewater flowrate ^[f]		N/A	
Ammonium-Nitrogen		N/A	
AOX		N/A	
Biochemical Oxygen Demand (BOD5)		N/A	
Chemical Oxygen Demand (COD)		N/A	
Dissolved Oxygen (DO) ^[f]		N/A	
Oil & Grease		N/A	
Total Phenols / Phenol Index		N/A	
Total Chlorine ^[f]		N/A	
Total Dissolved Solids (TDS)		N/A	
Total Nitrogen		N/A	
Total Phosphorus		N/A	
Total Suspended Solids (TSS)		N/A	

Wastewater / Anions - Test items	Effluent		
	Foundational	Progressive	Aspirational
Chloride		N/A	
Cyanide, total		N/A	
Sulfate		N/A	
Sulfide		N/A	
Sulfite		N/A	

Sludge – Disposal Pathways
B

Sludge / parameters - Test items	Sludge (Total)	Sludge (Leachate)
Antimony	Meet	
Arsenic	Meet	
Barium	Meet	
Cadmium	Meet	
Cobalt	Meet	
Copper	Meet	
Lead	Meet	
Nickel	Meet	
Selenium	Meet	
Silver	Meet	
Chromium (total)	Meet	
Zinc	Meet	
Chromium VI	Meet	
Mercury	Meet	



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Sludge / Anion - Test items	Sludge
Cyanide	ND

Sludge / Conventional parameters - Test items	Sludge
pH	7.9
% Solids	49.5
Paint filter test	Pass
Faecal coliform	ND

Sludge / MRSL - Test items	Sludge
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers	ND
Polycyclic Aromatic Hydrocarbons (PAHs)	ND
Chlorotoluenes	ND

Note :	
ND = Not detected (less than reporting limit)	
D = Detected	
N/A = Not applicable	- = Did not perform
# = No comment	* = See Remark
^(S) = The samples were subcontracted to Intertek [Turkey] for testing.	
@ = Maximum holding time exceeded.	
(*) = Report for mock leather only.	
^[f] = On-site test by sampler.	

For and on behalf of
 Intertek Testing Services TURKEY Limited

Prepared and Checked By:



Eralp Anil
 Environmental Engineer
 For Intertek Testing Services Turkey

Authorized By:



Zeynep Akın
 Chemical Laboratory Manager
 For Intertek Testing Services Turkey



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Sample / Wastewater

1. Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers

APs&APEOs (n=1,2): With reference to In House Testing Method, "IHTM AL.2.421. Rev.5" (modified from ISO 18857-1, ISO 18857-2, ASTM D7065) ZDHC Wastewater Guidelines dichloromethane extraction GC-MS analysis.

APs&APEOs (n>2): With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (modified from ISO 18254-1) LC-MS-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Nonylphenol ethoxylates (NPEO)	9016-45-9; 26027-38-3; 37205-87-1; 68412-54-4; 127087-87-0	5	ND	µg/L
Nonylphenol (NP), mixed isomers	104-40-5; 11066-49-2; 25154-52-3; 84852-15-3	5	ND	µg/L
Octylphenol ethoxylates (OPEO)	9002-93-1; 9036-19-5; 68987-90-6	5	ND	µg/L
Octylphenol (OP), mixed isomers	140-66-9; 1806-26-4; 27193-28-8	5	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

2. Anti- Microbials & Biocides

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C, EPA 8270E) ZDHC Wastewater Guidelines Solvent extraction, followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
o-Phenylphenol (+salts)	90-43-7	100	ND	µg/L
Triclosan	3380-34-5	100	ND	µg/L
Permethrin	Multiple	500	ND	µg/L

Remark: ND = Not detected (less than reporting limit)



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3. Chlorinated Parafins

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (modified from EPA 3510C, ISO 12010) ZDHC Wastewater Guidelines Solvent extraction, followed by GC-ECNI-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Medium-chain Chlorinated paraffins (MCCPs) (C14-C17)	85535-85-9	500	ND	µg/L
Short-chain Chlorinated paraffin (C10 – C13)	85535-84-8	100	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

4. Chlorobenzenes and Chlorotoluenes

With reference to In House Testing Method "IHTM AL.2.421 Rev.5" (modified from EPA 3510C, EPA 8260D, EPA 8270E) ZDHC Wastewater Guidelines Dichloromethane extraction followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
1,2-Dichlorobenzene	95-50-1	0.2	ND	µg/L
Other isomers of mono-, di-, tri-, tetra-, penta- and hexa- Chlorobenzene and mono-, di-, tri-, tetra- and penta-chlorotoluene	Multiple	0.2	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

5. Chlorophenols

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C, EPA 8270E) ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
2-Chlorophenol	95-57-8	0.5	ND	µg/L
3-Chlorophenol	108-43-0	0.5	ND	µg/L
4-Chlorophenol	106-48-9	0.5	ND	µg/L
2,3-Dichlorophenol	576-24-9	0.5	ND	µg/L
2,4-Dichlorophenol	120-83-2	0.5	ND	µg/L
2,5-Dichlorophenol	583-78-8	0.5	ND	µg/L
2,6-Dichlorophenol	87-65-0	0.5	ND	µg/L
3,4-Dichlorophenol	95-77-2	0.5	ND	µg/L
3,5- Dichlorophenol	591-35-5	0.5	ND	µg/L
2,3,4-Trichlorophenol	15950-66-0	0.5	ND	µg/L
2,3,5-Trichlorophenol	933-78-8	0.5	ND	µg/L

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2,3,6-Trichlorophenol	933-75-5	0.5	ND	µg/L
2,4,5-Trichlorophenol	95-95-4	0.5	ND	µg/L
2,4,6-Trichlorophenol	88-06-2	0.5	ND	µg/L
3,4,5-Trichlorophenol	609-19-8	0.5	ND	µg/L
2,3,4,5-Tetrachlorophenol	4901-51-3	0.5	ND	µg/L
2,3,4,6-Tetrachlorophenol	58-90-2	0.5	ND	µg/L
2,3,5,6-Tetrachlorophenol	935-95-5	0.5	ND	µg/L
Pentachlorophenol (PCP)	87-86-5	0.5	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

6. Dimethyl Formamide (DMFa)

With reference to In House Testing Method "IHTM AL.2.475. Rev.0" (modified from DIN 54439) followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Dimethyl formamide; N,N-dimethylformamide (DMFa) (*)	68-12-2	1000	N/A	µg/L

Remark: ND = Not detected (less than reporting limit)
(*) Report for mock leather only.

7. Dyes – Carcinogenic or Equivalent Concern

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (modified from DIN 54231) ZDHC Wastewater Guidelines followed by LC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Basic violet 3 with >0.1% of Michler's Ketone	548-62-9	500	ND	µg/L
C.I. Acid Red 26	3761-53-3	500	ND	µg/L
C.I. Acid Violet 49	1694-09-3	500	ND	µg/L
C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)	2580-56-5	500	ND	µg/L
C.I. Basic Green 4 (malachite green chloride)	569-64-2	500	ND	µg/L
C.I. Basic Green 4 (malachite green oxalate)	2437-29-8	500	ND	µg/L
C.I. Basic Green 4 (malachite green)	10309-95-2	500	ND	µg/L
C.I. Basic Red 9	569-61-9	500	ND	µg/L
C.I. Basic Violet 14	632-99-5	500	ND	µg/L
C.I. Direct Black 38	1937-37-7	500	ND	µg/L
C.I. Direct Blue 6	2602-46-2	500	ND	µg/L



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C.I. Direct Red 28	573-58-0	500	ND	µg/L
C.I. Disperse Blue 1	2475-45-8	500	ND	µg/L
C.I. Disperse Blue 3	2475-46-9	500	ND	µg/L
Disperse Orange 11	82-28-0	500	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

8. Dyes – Disperse (Allergenic)

With reference to In House Testing Method “IHTM AL.2.421. Rev.5” (modified from DIN 54231) ZDHC Wastewater Guidelines followed by LC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Disperse Blue 102	12222-97-8	50	ND	µg/L
Disperse Blue 106	12223-01-7	50	ND	µg/L
Disperse Blue 124	61951-51-7	50	ND	µg/L
Disperse Blue 26	3860-63-7	50	ND	µg/L
Disperse Blue 35	12222-75-2 56524-77-7	50	ND	µg/L
Disperse Blue 7	3179-90-6	50	ND	µg/L
Disperse Brown 1	23355-64-8	50	ND	µg/L
Disperse Orange 1	2581-69-3	50	ND	µg/L
Disperse Orange 3	730-40-5	50	ND	µg/L
Disperse Orange 37/59/76	13301-61-6	50	ND	µg/L
Disperse Red 1	2872-52-8	50	ND	µg/L
Disperse Red 11	2872-48-2	50	ND	µg/L
Disperse Red 17	3179-89-3	50	ND	µg/L
Disperse Yellow 1	119-15-3	50	ND	µg/L
Disperse Yellow 3	2832-40-8	50	ND	µg/L
Disperse Yellow 39	12236-29-2	50	ND	µg/L
Disperse Yellow 49	54824-37-2	50	ND	µg/L
Disperse Yellow 9	6373-73-5	50	ND	µg/L

Remark: ND = Not detected (less than reporting limit)



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9. Dyes – Navy Blue Colourant

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (modified from DIN 54231) ZDHC Wastewater Guidelines followed by LC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Component 1: C39H23Cl-CrN7O12S 2Na	118685-33-9	500	ND	µg/L
Component 2: C46H-30CrN10O20S2 3Na	Not Allocated	500	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

10. Flame retardants

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C, EPA 527, ISO 22032) ZDHC Wastewater Guidelines followed by GC-MS and ICP-MS analysis.

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C, EPA 8321B) ZDHC Wastewater Guidelines followed by GC-ECNI-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
2,2-Bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0	25	ND	µg/L
Bis(2,3-dibromopropyl) phosphate (BIS)	5412-25-9	25	ND	µg/L
Decabromodiphenyl ether (DecaBDE)	1163-19-5	25	ND	µg/L
Hexabromocyclododecane (HBCDD)	3194-55-6	25	ND	µg/L
Octabromodiphenyl ether (OctaBDE)	32536-52-0	25	ND	µg/L
Pentabromodiphenyl ether (PentaBDE)	32534-81-9	25	ND	µg/L
Polybromobiphenyls (PBBs)	59536-65-1	25	ND	µg/L
Tetrabromobisphenol A (TBBPA)	79-94-7	25	ND	µg/L
Tris-(2-chloro-1-methylethyl) phosphate (TCPP)	13674-84-5	25	ND	µg/L
Tris(1-aziridinyl)phosphine oxide (TEPA)	545-55-1	25	ND	µg/L
Tris(1,3-dichloro-isopropyl) phosphate (TDCP)	13674-87-8	25	ND	µg/L
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8	25	ND	µg/L
Tris(2,3-dibromopropyl) phosphate (TRIS)	126-72-7	25	ND	µg/L
Decabromobiphenyl (DecaBB)	13654-09-6	25	ND	µg/L
Dibromobiphenyls (DiBB)	Multiple	25	ND	µg/L
Octabromobiphenyls (OctaBB)	Multiple	25	ND	µg/L
Dibromopropylether	21850-44-2	25	ND	µg/L
Heptabromodiphenyl ether (HeptaBDE)	68928-80-3	25	ND	µg/L
Hexabromodiphenyl ether (HexaBDE)	36483-60-0	25	ND	µg/L
Monobromobiphenyls (MonoBB)	Multiple	25	ND	µg/L

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Monobromodiphenylethers (MonoBDEs)	Multiple	25	ND	µg/L
Nonabromobiphenyls (NonaBB)	Multiple	25	ND	µg/L
Nonabromodiphenyl ether (NonaBDE)	63936-56-1	25	ND	µg/L
Tetrabromodiphenyl ether (TetraBDE)	40088-47-9	25	ND	µg/L
Tribromodiphenylethers (TriBDEs)	Multiple	25	ND	µg/L
Boric acid	10043-35-3 11113-50-1	100 in Boron	731.6	µg/L
Diboron trioxide	1303-86-2	100 in Boron	411.8	µg/L
Disodium octaborate	12008-41-2	100 in Boron	ND	µg/L
Disodium tetraborate anhydrous	1303-96-4 1330-43-4	100 in Boron	ND	µg/L
Tetraboron disodium heptaoxide, hydrate	12267-73-1	100 in Boron	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

11. Glycols / Glycol Ethers

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C) ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
2-ethoxyethanol	110-80-5	50	ND	µg/L
2-ethoxyethyl acetate	111-15-9	50	ND	µg/L
2-methoxyethanol	109-86-4	50	ND	µg/L
2-methoxyethylacetate	110-49-6	50	ND	µg/L
2-methoxypropylacetate	70657-70-4	50	ND	µg/L
Bis(2-methoxyethyl)-ether	111-96-6	50	ND	µg/L
Ethylene glycol dimethyl ether	110-71-4	50	ND	µg/L
Triethylene glycol dimethyl ether	112-49-2	50	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

12. Halogenated solvents

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 8260D, EPA 5021A) ZDHC Wastewater Guidelines followed by Headspace GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
1,2-Dichloroethane	107-06-2	1	ND	µg/L
Methylene chloride	75-09-2	1	ND	µg/L
Tetrachloroethylene	127-18-4	1	ND	µg/L
Trichloroethylene	79-01-6	1	ND	µg/L

Remark: ND = Not detected (less than reporting limit)



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13. Organotin compounds

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C, ISO 17353) ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Dipropyltin compounds (DPT)	Multiple	0.01	ND	µg/L
Mono-, di- and tri-butyltin derivatives	Multiple	0.01	ND	µg/L
Mono, di-, and tri-methyltin derivatives	Multiple	0.01	ND	µg/L
Mono, di-, and tri-octyltin derivatives	Multiple	0.01	ND	µg/L
Mono, di-, and tri-phenyltin derivatives	Multiple	0.01	ND	µg/L
Tetraethyltin compounds (TeET)	Multiple	0.01	ND	µg/L
Tripropyltin Compounds (TPT)	Multiple	0.01	ND	µg/L
Tetraoctyltin compounds (TeOT)	Multiple	0.01	ND	µg/L
Tricyclohexyltin (TCyHT)	Multiple	0.01	ND	µg/L
Tetraethyltin Compounds (TeET)	Multiple	0.01	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

14. Other/Miscellaneous Chemicals

Others: With reference to In House Testing Method "IHTM AL.2.421. Rev.5" ZDHC Wastewater Guidelines followed by LC-MS-MS analysis.

Quinoline: With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from DIN 54231) ZDHC Wastewater Guidelines followed by LC-MS-MS analysis.

Borate salt: determined as total boron and total zinc with reference to In House Testing Method "IHTM AL.2.439. Rev.3" (Modified from EPA 3015A ve EPA 6020B) ZDHC Wastewater Guidelines followed by ICP-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
AEEA [2-(2-aminoethylamino)ethanol]	111-41-1	500	ND	µg/L
Bisphenol A	80-05-7	10	ND	µg/L
Thiourea	62-56-6	50	ND	µg/L
Quinoline	91-22-5	50	ND	µg/L
Borate, zinc salt	12767-90-7	100 in Boron	ND	µg/L

Remark: ND = Not detected (less than reporting limit)



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15. Perfluorinated & polyfluorinated chemicals (PFCs)

PFCs: With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (modified from DIN 38407-42, CEN/TS 15968) ZDHC Wastewater Guidelines followed by LC-MS-MS analysis.

FTOH: With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (modified from EPA 3510C, CEN/TS 15968, Journal of Chromatography A, 1178 (2008) 199-205) ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Perfluorooctane sulfonate (PFOS) and related substances	Multiple	0.01	ND	µg/L
Perfluorooctanoic acid (PFOA) related substances	Multiple	1	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

16. Phthalates – including all other esters of ortho-phthalic acid

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C, EPA 8270E, ISO 18856, ISO 14389) ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
1,2-benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6	10	ND	µg/L
1,2-benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	10	ND	µg/L
Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8	10	ND	µg/L
Butyl benzyl phthalate (BBP)	85-68-7	10	ND	µg/L
Di-cyclohexyl phthalate (DCHP)	84-61-7	10	ND	µg/L
Di-iso-decyl phthalate (DIDP)	26761-40-0	10	ND	µg/L
Di-iso-octyl phthalate (DIOP)	27554-26-3	10	ND	µg/L
Di-isobutyl phthalate (DIBP)	84-69-5	10	ND	µg/L
Di-isononyl phthalate (DINP)	28553-12-0	10	ND	µg/L
Di-n-hexyl phthalate (DnHP)	84-75-3	10	ND	µg/L
Di-n-octyl phthalate (DNOP)	117-84-0	10	ND	µg/L
Di-n-pentylphthalates	131-18-0	10	ND	µg/L
Di-n-propyl phthalate (DPRP)	131-16-8	10	ND	µg/L
Di(ethylhexyl) phthalate (DEHP)	117-81-7	10	ND	µg/L
Dibutyl phthalate (DBP)	84-74-2	10	ND	µg/L
Diethyl phthalate (DEP)	84-66-2	10	ND	µg/L
Diisopentylphthalates	605-50-5	10	ND	µg/L
Dinonyl phthalate (DNP)	84-76-4	10	ND	µg/L

Remark: ND = Not detected (less than reporting limit)



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17. Polycyclic aromatic hydrocarbons (PAHs)

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C, EPA 8270E, DIN 38407-39) ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Acenaphthene	83-32-9	1	ND	µg/L
Acenaphthylene	208-96-8	1	ND	µg/L
Anthracene	120-12-7	1	ND	µg/L
Benzo[a]anthracene	56-55-3	1	ND	µg/L
Benzo[a]pyrene (BaP)	50-32-8	1	ND	µg/L
Benzo[b]fluoranthene	205-99-2	1	ND	µg/L
Benzo[e]pyrene	192-97-2	1	ND	µg/L
Benzo[ghi]perylene	191-24-2	1	ND	µg/L
Benzo[j]fluoranthene	205-82-3	1	ND	µg/L
Benzo[k]fluoranthene	207-08-9	1	ND	µg/L
Chrysene	218-01-9	1	ND	µg/L
Dibenz[a,h]anthracene	53-70-3	1	ND	µg/L
Fluoranthene	206-44-0	1	ND	µg/L
Fluorene	86-73-7	1	ND	µg/L
Indeno[1,2,3-cd]pyrene	193-39-5	1	ND	µg/L
Naphthalene	91-20-3	1	ND	µg/L
Phenanthrene	85-01-8	1	ND	µg/L
Pyrene	129-00-0	1	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

18. Restricted Aromatic Amines (Cleavable from Azo-colourants)

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (Modified from EPA 3510C, ISO 14362-1) ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
2-Naphthylamine	91-59-8	0.1	ND	µg/L
2-Naphthylammoniumacetate	553-00-4	0.1	ND	µg/L
2,4-Xylidine	95-68-1	0.1	ND	µg/L
2,4,5-Trimethylaniline	137-17-7	0.1	ND	µg/L
2,4,5-Trimethylaniline hydrochloride	21436-97-5	0.1	ND	µg/L
2,6-Xylidine	87-62-7	0.1	ND	µg/L
3,3'-Dichlorobenzidine	91-94-1	0.1	ND	µg/L
3,3'-Dimethoxybenzidine	119-90-4	0.1	ND	µg/L
3,3'-Dimethylbenzidine	119-93-7	0.1	ND	µg/L
4-Aminoazobenzene	60-09-3	0.1	ND	µg/L
4-Aminodiphenyl	92-67-1	0.1	ND	µg/L



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4-Chloro-o-toluidine	95-69-2	0.1	ND	µg/L
4-Chloro-o-toluidinium chloride	3165-93-3	0.1	ND	µg/L
4-Chloroaniline	106-47-8	0.1	ND	µg/L
4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisoole sulphate	39156-41-7	0.1	ND	µg/L
4-methoxy-m-phenylenediamine	615-05-4	0.1	ND	µg/L
4-methyl-m-phenylenediamine	95-80-7	0.1	ND	µg/L
4,4'-Methylene-bis(2-chloroaniline)	101-14-4	0.1	ND	µg/L
4,4'-methylenedi-o-toluidine	838-88-0	0.1	ND	µg/L
4,4'-methylenedianiline	101-77-9	0.1	ND	µg/L
4,4'-Oxydianiline	101-80-4	0.1	ND	µg/L
4,4'-Thiodianiline	139-65-1	0.1	ND	µg/L
5-Nitro-o-toluidine	99-55-8	0.1	ND	µg/L
6-methoxy-m-toluidine	120-71-8	0.1	ND	µg/L
Benzidine	92-87-5	0.1	ND	µg/L
o-Aminoazotoluene	97-56-3	0.1	ND	µg/L
o-Anisidine	90-04-0	0.1	ND	µg/L
o-Toluidine	95-53-4	0.1	ND	µg/L

Remark: ND = Not detected (less than reporting limit)

19. UV Absorbers

With reference to In House Testing Method "IHTM AL.2.421 Rev.5" ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl) phenol (UV-350)	36437-37-3	100	ND	µg/L
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	100	ND	µg/L
2-benzotriazol-2-yl-4,6-di-tertbutylphenol (UV-320)	3846-71-7	100	ND	µg/L
2,4-Di-tert-butyl-6-(5-chlorobenzotriazole-2-yl) phenol (UV-327)	3864-99-1	100	ND	µg/L

Remark: ND = Not detected (less than reporting limit)



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20. Volatile organic compounds (VOCs)

With reference to In House Testing Method "IHTM AL.2.421. Rev.5" (modified from EPA 8260D ve EPA 5021A) ZDHC Wastewater Guidelines followed by Headspace GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (µg/L)	Untreated wastewater	Unit
Benzene	71-43-2	1	ND	µg/L
m-cresol	108-39-4	1	ND	µg/L
o-cresol	95-48-7	1	ND	µg/L
p-cresol	106-44-5	1	ND	µg/L
Xylene	1330-20-7	1	ND	µg/L
Toluene (*)	108-88-3	1	N/A	µg/L

Remark: ND = Not detected (less than reporting limit)

(*) Report for mock leather only.

21. Heavy metals

Others; With reference to In House Testing Method "IHTM AL.2.439. Rev.3" (Modified from EPA 3015A ve EPA 6020B) followed by ICP-MS analysis.

Chromium (VI); With reference to ISO 18412 followed by spectrophotometric analysis.

Chemical substances	Limit			Reporting limit (mg/L)	Effluent	Unit
	Foundational	Progressive	Aspirational			
Antimony	0.1 mg/L	0.05 mg/L	0.01 mg/L	0.01	N/A	mg/L
Chromium (VI)	0.05 mg/L	0.005 mg/L	0.001 mg/L	0.001	ND	mg/L
Barium	Sample and report only			0.01	N/A	mg/L
Selenium	Sample and report only			0.01	N/A	mg/L
Tin	Sample and report only			0.01	N/A	mg/L
Arsenic	0.05 mg/L	0.01 mg/L	0.005 mg/L	0.005	ND	mg/L
Chromium (total)	0.2 mg/L	0.1 mg/L	0.05 mg/L	0.05	N/A	mg/L
Cobalt	0.05 mg/L	0.02 mg/L	0.01 mg/L	0.01	N/A	mg/L
Cadmium	0.1 mg/L	0.05 mg/L	0.01 mg/L	0.01	ND	mg/L
Copper	1 mg/L	0.5 mg/L	0.25 mg/L	0.25	N/A	mg/L
Lead	0.1 mg/L	0.05 mg/L	0.01 mg/L	0.01	ND	mg/L
Nickel	0.2 mg/L	0.1 mg/L	0.05 mg/L	0.05	N/A	mg/L
Silver	0.1 mg/L	0.05 mg/L	0.005 mg/L	0.005	N/A	mg/L
Zinc	5.0 mg/L	1.0 mg/L	0.5 mg/L	0.5	N/A	mg/L
Mercury	0.01 mg/L	0.005 mg/L	0.001 mg/L	0.001	ND	mg/L

Remark: ND = Not detected (less than reporting limit)



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22. Conventional parameters

Parameters	Test method	Limit			Reporting limit	Effluent	Unit
		Foundational	Progressive	Aspirational			
pH	SM 4500-H+	6-9			N/A	N/A	[f]
Temperature difference	SM 2550 B	△+15	△+10	△+5	N/A	N/A	[f] °C
E.coli	ISO 9308-1	126			1.8	N/A	MPN/100-ml
Colour (436 nm ; 525 nm ; 620nm)	ISO 7887-B	7;5;3	5;3;2	2;1;1	N/A	N/A	[m-1]
Persistent Foam	/	No indication of Persistent foam in receiving water			N/A	N/A	[f]
Wastewater Flowrate	/	N/A			N/A	N/A	[f] m ³ /day
Ammonium-Nitrogen	SM 4500 NH3 F	10	1	0.5	0.5	N/A	mg/L
AOX	ISO 9562	3	0.5	0.1	0.1	N/A	mg/L
Biochemical Oxygen Demand (BOD ₅)	SM 5210-B	30	15	8	8	N/A	mg/L
Chemical Oxygen Demand (COD)	SM 5220-D	150	80	40	40	N/A	mg/L
Dissolved Oxygen (DO)	SM 4500-O-G	Sample and report only			N/A	N/A	[f] mg/L
Oil and grease	USEPA 1664	10	2	0.5	0.5	N/A	mg/L
Total Phenols / Phenol Index	SM 5530-B&C	0.5	0.01	0.001	0.001	N/A	mg/L
Total Chlorine	ISO 7393-2	Sample and report only			0.2	N/A	[f] mg/L
Total Dissolved Solids (TDS)	SM 2540-C	Sample and report only			10	N/A	mg/L
Total-Nitrogen	IS 3025 (Sum of SM4500-Norg B, SM4500-NO2-B, SM4500-NO3- E)	20	10	5	5	N/A	mg/L
Total-Phosphorus	EPA 3015 A & ISO 11885	3	0.5	0.1	0.1	N/A	mg/L



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Total Suspended Solids (TSS)	SM 2540D	50	15	5	5	N/A	mg/L
Chloride	SM 4500-Cl C	Sample and report only			10	N/A	mg/L
Cyanide, total	SM 4500-CN-C&E	0.2	0.1	0.05	0.05	N/A	mg/L
Sulfate	SM 4500 SO4 E	Sample and report only			10	N/A	mg/L
Sulfide	SM 4500-S2-D	0.5	0.05	0.01	0.01	N/A	mg/L
Sulfite	SM 4500 SO32 C	2	0.5	0.2	0.2	N/A	mg/L

Remark:

ND = Not detected (less than reporting limit)

△ is the degree above ambient temperature of receiving water body.

@ = Maximum holding time exceeded.

^[f] = On-site test by sampler.

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Sample / Sludge

Sludge flux (weight/time) and / or flow data volume/time: N/A

1. Heavy metals

Others: With reference to In House Testing Method "IHTM AL.2.428. Rev.5" (EPA 3051A, ISO 17294-2 ve EPA 6020B'den modifiye edilmiştir) ZDHC Wastewater Guidelines followed by ICP-MS analysis.

Chromium VI: With reference to In House Testing Method "IHTM AL.2.428. Rev.5" (ISO 18412, TS EN ISO 18412'den modifiye edilmiştir.) ZDHC Wastewater Guidelines followed by Colourimetric UV/VIS analysis.

Chemical substances	Reporting limit (Dry weight) (mg/kg)	Sludge (Dry weight)	Unit
Antimony	5	ND	mg/kg
Arsenic	5	ND	mg/kg
Barium	200	ND	mg/kg
Cadmium	1	ND	mg/kg
Cobalt	400	ND	mg/kg
Copper	50	ND	mg/kg
Lead	5	ND	mg/kg
Nickel	20	ND	mg/kg
Selenium	5	ND	mg/kg
Silver	50	ND	mg/kg
Total Chromium	50	ND	mg/kg
Zinc	400	ND	mg/kg
Chromium (VI)	20	ND	mg/kg
Mercury	1	ND	mg/kg

Remark: ND = Not detected (less than reporting limit)

@ = Maximum holding time exceeded.

2. Anions

With reference to USEPA 9013 A, USEPA 9014.

Chemical substances	Reporting limit (Dry weight) (mg/kg)	Sludge (Dry weight)	Unit
Cyanide	20	ND	mg/kg

Remark: ND = Not detected (less than reporting limit)

@ = Maximum holding time exceeded.



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3. Conventional parameters

Chemical substances	Test method	Reporting limit (Dry weight)	Sludge (Dry weight)	Unit
pH	USEPA SW 9045D	N/A	7.9	N/A
% Solids	USEPA 160.3	N/A	49.5	%
Paint Filter Test ^	USEPA 9095B	N/A	Pass	N/A
Fecal Coliform	TS EN ISO 7899-2	10 MPN/g	ND	MPN/g

Remark: ND = Not detected (less than reporting limit)

@ = Maximum holding time exceeded.

^ - Report "Pass" when Paint Filter Test does not contain free liquid; Report "Fail" when Paint Filter Test does contain free liquid.

4. Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers

APs/APEOs (n=1,2): With reference to In House Testing Method, "IHTM AL.2.428. Rev.5" (modified from EPA 3540C, ISO 18857-2) ZDHC Wastewater Guidelines dichloromethane extraction GC-MS analysis.

APs/APEOs (n>2): With reference to In House Testing Method "IHTM AL.2.428. Rev.5" (modified from EPA 3550C, ISO 18254-1) LC-MS-MS analysis.

Chemical substances	CAS no.	Reporting limit (Dry weight) (mg/kg)	Sludge (Dry weight)	Unit
Nonylphenol ethoxylates (NPEO)	9016-45-9; 26027-38-3; 37205-87-1; 68412-54-4; 127087-87-0	0.4	ND	mg/kg
Nonylphenol (NP), mixed isomers	104-40-5; 11066-49-2; 25154-52-3; 84852-15-3	0.4	ND	mg/kg
Octylphenol ethoxylates (OPEO)	9002-93-1; 9036-19-5; 68987-90-6	0.4	ND	mg/kg
Octylphenol (OP), mixed isomers	140-66-9; 1806-26-4; 27193-28-8	0.4	ND	mg/kg

Remark: ND = Not detected (less than reporting limit)



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5. Polycyclic aromatic hydrocarbons (PAHs)

With reference to In House Testing Method "IHTM AL.2.428. Rev.5" (modified from EPA 3540C, EPA 8270E, DIN 38407-39) ZDHC Wastewater Guidelines followed by GC-MS analysis

Chemical substances	CAS no.	Reporting limit (Dry weight) (mg/kg)	Sludge (Dry weight)	Unit
Acenaphthene	83-32-9	0.2	ND	mg/kg
Acenaphthylene	208-96-8	0.2	ND	mg/kg
Anthracene	120-12-7	0.2	ND	mg/kg
Benzo[a]anthracene	56-55-3	0.2	ND	mg/kg
Benzo[a]pyrene (BaP)	50-32-8	0.2	ND	mg/kg
Benzo[b]fluoranthene	205-99-2	0.2	ND	mg/kg
Benzo[e]pyrene	192-97-2	0.2	ND	mg/kg
Benzo[ghi]perylene	191-24-2	0.2	ND	mg/kg
Benzo[j]fluoranthene	205-82-3	0.2	ND	mg/kg
Benzo[k]fluoranthene	207-08-9	0.2	ND	mg/kg
Chrysene	218-01-9	0.2	ND	mg/kg
Dibenz[a,h]anthracene	53-70-3	0.2	ND	mg/kg
Fluoranthene	206-44-0	0.2	ND	mg/kg
Fluorene	86-73-7	0.2	ND	mg/kg
Indeno[1,2,3-cd]pyrene	193-39-5	0.2	ND	mg/kg
Naphthalene	91-20-3	0.2	ND	mg/kg
Phenanthrene	85-01-8	0.2	ND	mg/kg
Pyrene	129-00-0	0.2	ND	mg/kg

Remark: ND = Not detected (less than reporting limit)

6. Chlorotoluenes

With reference to In House Testing Method "IHTM AL.2.428 Rev.5" (modified from EPA 3510C, EPA 8260D, EPA 8270E) ZDHC Wastewater Guidelines followed by GC-MS analysis.

Chemical substances	CAS no.	Reporting limit (Dry weight) (mg/kg)	Sludge (Dry weight)	Unit
Other isomers of mono-, di-, tri-, tetra- and penta- chlorotoluene	Multiple	0.2	ND	mg/kg

Remark: ND = Not detected (less than reporting limit)



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7. Leachate heavy metals

Others: With reference to ISO 17294-2 with ICP-MS analyses.

Chromium VI: With reference to Toxicity leachate extraction procedure ISO 18412 with Colourimetric UV/VIS analyses.

Mercury: With reference to EPA 6020b with ICP-MS analysis.

Cyanide: Toxicity Leachate Extraction Procedure followed by USEPA 9013 and Analysis: EPA 9014

Chemical substances	Reporting limit (mg/L)	Sludge	Unit
Arsenic	0.1	N/A	mg/L
Cadmium	0.03	N/A	mg/L
Total Chromium	1	N/A	mg/L
Lead	0.1	N/A	mg/L
Antimony	0.12	N/A	mg/L
Barium	7	N/A	mg/L
Cobalt	16	N/A	mg/L
Copper	2	N/A	mg/L
Nickel	0.7	N/A	mg/L
Selenium	0.1	N/A	mg/L
Silver	1	N/A	mg/L
Zinc	10	N/A	mg/L
Chromium (VI)	0.5	N/A	mg/L
Mercury	0.01	N/A	mg/L

Remark: ND = Not detected (less than reporting limit)

Testing period: From 12/04/2023 to 28/04/2023



SOFTLINES WASTEWATER TESTING
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Appendix 1: reference to ZDHC WWSG v2 Table 4B

Parameters		Disposal pathways						
		A and B (Leachate result in mg/L)	C (Leachate result in mg/L)	D (Leachate result in mg/L)	E (Leachate result in mg/L)	F (Leachate result in mg/L)	G (Leachate result in mg/L)	G (Total metals limit in mg/kg)
Total metals and anions threshold values (mg/kg)								
Arsenic	10	Report only if required to test	5	2.75	0.5	0.5	0.5	75
Cadmium	3		1	0.58	0.15	0.15	0.15	85
Total Chromium	100		15	10	5	5	5	3000
Lead	10		5	2.75	0.5	0.5	0.5	840
Antimony	12		15	7.8	0.6	0.6	0.6	Sample and report only
Barium	700		100	67.5	35	35	35	
Cobalt	1600		80	80	80	80	80	
Copper	200		25	17.5	10	10	10	4300
Nickel	70		20	11.75	3.5	3.5	3.5	420
Selenium	10		1	0.75	0.5	0.5	0.5	100
Silver	100		5	5	5	5	5	Sample and report only
Zinc	1000		250	150	50	50	50	7500
Chromium VI	50		5	3.75	2.5	2.5	2.5	50
Mercury	1		0.2	0.125	0.05	0.05	0.05	57



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Appendix 2: reference to ZDHC WWSG v2 Table 4C

Parameters	Disposal pathways							
	A and B	C	D	E	F	G		
pH	Sample and report only	5 – 11 s.u.	5 – 11 s.u.	5 – 11 s.u.	6.5 – 9 s.u.	6.5 – 9 s.u.		
% Solids		Sample and report only	Sample and report only	Sample and report only	Sample and report only	Sample and report only	Sample and report only	
Fecal Coliform				< 1000 (MPN/g)				
Paint Filter Test				Pass Paint filter test				Sample and report only
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers				< 0.4 mg/kg				
Polycyclic Aromatic Hydrocarbons (PAHs)				< 0.2 mg/kg				
Chlorotoluenes				< 0.2 mg/kg				

Appendix 2: reference to ZDHC WWSG v2.1 Table 4D

Parameters	Disposal pathways					
	A and B	C	D	E	F	G
Cyanide	Report only if required to test	100 mg/kg	85 mg/kg	70 mg/kg	70 mg/kg	70 mg/kg



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Photo of sampling points:

- Sample / Wastewater (Untreated wastewater) Sampling Point:



- Sample / Wastewater (Effluent) Sampling Point:



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- Sample / Sludge Sampling Point:



Photo of samples:

- Sample / Wastewater Samples:



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- Sample / Sludge Samples:



End of report

This report is made solely on the basis of instructions and/or information and materials supplied by you (the Client), It is not intended to be a recommendation for any specific course of action. Intertek shall not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as that which is expressly contained in the terms and conditions governing the provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent, truthful, and careful basis and we do not accept any liability to you for any direct or in-direct loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or willful misconduct.

