



TEST REPORT

Technical Report

(7322)060-0012

April 21, 2022

Date Received

Feb 28, 2022

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Factory Company Name:

Artistic Garment Industries (AGI DENIM) (Pvt) Ltd.

Factory Address:

Survey # 16 & 17 Deh Khando Tappo Landhi Bin Qasim Town Karachi, Pakistan, 75020

Project No.:

2022

Client Reference No.:

Sampling Method:

I001) Incoming Water – Grab Sample
I002) Raw Wastewater – 6 hours - Time – Weighted Composite Grab Samples
I003) Treated Wastewater – 6 hours - Time – Weighted Composite Grab Samples
I004) Sludge – Grab Sample

Sample Pick Up Date:

Feb 26, 2022

Wastewater Discharge to:

Factory Owned ETP

On-Site Effluent Treatment Plant (ETP):

Yes

Discharge Type:

Direct Discharge

Off-site ETP name (if applicable):

N/A

Off-site ETP address (if applicable):

N/A

Local Regulation / Ordinance / requirements related to wastewater discharged are followed:

Sindh Environmental Quality Standard-Pakistan. (SEQS)

Permit Validation Date:

Parameters Exceeded Local Regulation

None

Legal compliance:

Comply

Conventional Parameters

Overall Category:

Foundational (ZDHC WW Guideline V 1.1)

Test Period:

Feb 26, 2022 – April 21, 2022

Sample Description:

I001) Colorless Liquid– Incoming Water
I002) Black Color Liquid – Raw Wastewater
I003) Light Yellowish Color Liquid – Treated Wastewater
I004) Black Color Solid – Sludge

Parameters exceeded maximum holding time:

Total –P, Coliform

Environmental Conditions:

Temperature =

26.37°C

Relative Humidity =

51.23%



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REMARK

Extractions of parameters of 2A) APs and APEOs, 2B) Chlorobenzenes and Chlorotoluenes 2C) Chlorophenols, 2D) Azo Dyes, 2E) Carcinogenic Dyes, 2F) Disperse Dyes, 2L) Phthalates have been performed in BV Pakistan Laboratory, other substance instrumental analysis has been subcontracted.

Analysis of Table 1B) Conventional Parameters - heavy metals have subcontracted and Analysis of Table 1A conventional parameters, except pH, temperature, TSS, COD, BOD and Oil & Grease have subcontracted to other Local Lab

If there are questions or concerns on this report, please contact the following persons:

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BV CONSUMER PRODUCTS SERVICES (PAKISTAN) PVT. LTD.

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Executive Summary:

1A) Conventional Parameters	1001	I002	1003	1004
Temperature	N/A	N/A	<input type="checkbox"/>	N/R
TSS			<input type="checkbox"/>	
COD			<input type="checkbox"/>	
Total-N			<input type="checkbox"/>	
pH Value			<input type="checkbox"/>	
Color [m^{-1}] (436nm; 525nm; 620nm)			<input type="checkbox"/>	
BOD ₅			<input type="checkbox"/>	
Ammonium-N			<input type="checkbox"/>	
Total-P			<input type="checkbox"/>	
AOX			<input type="checkbox"/>	
Oil and Grease			<input type="checkbox"/>	
Phenol			<input type="checkbox"/>	
Coliform			<input type="checkbox"/>	
Persistent Foam			<input type="checkbox"/>	
ANIONS – Cyanide			<input type="checkbox"/>	N/A
ANIONS – Sulfide			<input type="checkbox"/>	N/R
ANIONS – Sulfite			<input type="checkbox"/>	
1B) Conventional Parameters – METALS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A

Notes/keys:

- ☐ – Meet Foundational Limit / Meet discharge license criteria
- ☒ – Exceeding Foundational Limit / Exceeding discharge license criteria
- NR – Not Requested / Not required
- N/A- Not Applicable

ZDHC MRSL Substances	1001	I002	1003	1004
2A) APs and APEOs	N/A	o	o	o
2B) Chlorobenzenes and Chlorotoluenes	N/A	o	o	o
2C) Chlorophenols	N/A	o	o	o
2D) Azo Dyes	N/A	o	o	o
2E) Carcinogenic Dyes	N/A	o	o	o
2F) Disperse Dyes	N/A	o	o	o
2G) Flame Retardants	N/A	o	o	o
2H) Glycols	N/A	o	o	o
2I) Halogenated Solvents	N/A	o	o	o
2J) Organotin Compounds	N/A	o	o	o
2K) Perfluorinated and Polyfluorinated Chemicals	N/A	o	o	o
2L) Phthalates	N/A	o	o	o
2M) Poly Aromatic Hydrocarbons	N/A	o	o	o
2N) Volatile Organic Compounds	N/A	o	o	o



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Note / Key :

- ● – Detected
- ○ – Not Detected
- NR–Not Request
- N/A - Not Applicable



Objective

The environment samples were tested for below parameters.

- 1A) Conventional Parameters
- 1B) Conventional Parameters – METALS
- 2A) APs and APEOs
- 2B) Chlorobenzenes and Chlorotoluenes
- 2C) Chlorophenols
- 2D) Azo Dyes
- 2E) Carcinogenic Dyes
- 2F) Disperse Dyes
- 2G) Flame Retardants
- 2H) Glycols
- 2I) Halogenated Solvents
- 2J) Organotin Compounds
- 2K) Perfluorinated and Polyfluorinated Chemicals
- 2L) Phthalates
- 2M) Poly Aromatic Hydrocarbons
- 2N) Volatile Organic Compounds

Sampling Plan

Basically, four environment samples were sampled per factory, including 1) Incoming Water; 2) Raw Wastewater; 3) Discharged Wastewater (treated wastewater) and 4) Sludge. Total number of sample collected will be depended on the actual factory facilities and manufacturing processes.

Method of sampling used is time-weighted composite grab samples (agreed with client.). Composite sampling shall be performed for no less than six hours, with no more than one hour between discrete samples. Each discrete sample shall be of equal volume. Wastewater and freshwater samples should, as much as possible, be collected simultaneously, during the time that PU is in normal operation. The sampling shall aim to analyse the snapshot of water quality characteristics of the operating PU. Under no circumstance shall samples be taken during times when the production process is not running or the wastewater is diluted due to heavy rainfall, etc.

Remark :

- Sampling procedure is with reference to below standards:
 - 1) South Australia EPA Guidelines (June 2007), Regulatory Monitoring and Testing Water and Wastewater Sampling.
 - 2) Australia EPA (Victoria) Guideline (June 2009), Sampling and Analysis of Waters, Wastewaters, Soils and Wastes.
 - 3) ISO 5667-3:2003, Water Quality - Sampling - Part 3: Guidance on the Preservation and Handling of Water Samples.
 - 4) ASTM D3976-92 (Reapproved 2010), Standard Practice for Preparation of Sediment Samples for Chemical Analysis.
- Field data records are attached in Appendix C.



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Test Result

1A) Conventional Parameters

Temperature

Test Method : Measurement by thermometer

Tested Item(s)	Result	Unit	Conclusion
1003	33.94 (Foundational)	deg. C	DATA

Note:

deg. C = degree Celsius (°C)

Foundational Limit: ▲ 15 / max. 35°C; Progressive Limit: ▲ 10 / max. 30°C; Aspirational Limit: ▲ 5 / max. 25°C

Total Suspended Solids (TSS)

Test Method : Reference to APHA 2540D

Tested Item(s)	Result	Unit	Conclusion
1003	20 (Foundational)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 50 mg/L; Progressive Limit: 15 mg/L; Aspirational Limit: 5 mg/L

Chemical Oxygen Demand (COD)

Test Method : Reference to APHA 5220D

Tested Item(s)	Result	Unit	Conclusion
1003	55 (Progressive)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 150 mg/L; Progressive Limit: 80 mg/L; Aspirational Limit: 40 mg/L



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Total Nitrogen (Total-N)

Test Method : Reference to APHA 4500N-C

Tested Item(s)	Result	Unit	Conclusion
1003	ND (Aspirational)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 20 mg/L; Progressive Limit: 10 mg/L; Aspirational Limit: 5 mg/L

pH Value

Test Method : Reference to APHA-4500-H⁺B

-	Unit	Result
Test Item(s)	-	1003
Parameter	-	-
Temp. of sample	deg. C	33.94
pH value of sample	-	8.0 (Comply with ZDHC WWG requirements)
Conclusion	-	DATA

Note:

Temp. = Temperature
Limit: 6 - 9

deg. C = degree Celsius (°C)

Color [m⁻¹] (436nm; 526nm; 620nm)

Test Method : With reference to ISO 7887-B,

Tested Item(s)	Result	Unit	Conclusion
1003	6.4,3.4,2.4 (Foundational)	m ⁻¹	DATA

Note:

Foundational Limit: 7;5; 3 m⁻¹; Progressive Limit: 5;3;2 m⁻¹; Aspirational Limit: 2;1;1 m⁻¹



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Biochemical Oxygen Demand (BOD₅)

Test Method : Reference to APHA 5210B

Tested Item(s)	Result	Unit	Conclusion
1003	28.4 (Foundational)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 30 mg/L; Progressive Limit: 15 mg/L; Aspirational Limit: 5 mg/L

Ammonia Nitrogen

Test Method : Reference to APHA 4500 NH₃-N

Tested Item(s)	Result	Unit	Conclusion
1003	ND (Aspirational)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 10 mg/L; Progressive Limit: 1 mg/L; Aspirational Limit: 0.5 mg/L

Total Phosphorus (Total-P)

Test Method : Reference to APHA 4500P-J

Tested Item(s)	Result	Unit	Conclusion
1003	3.00 (Foundational)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 3 mg/L; Progressive Limit: 0.5 mg/L; Aspirational Limit: 0.1 mg/L

Adsorbable Organic Halogen (AOX)

Test Method : Reference to U. S. EPA 1650

Tested Item(s)	Result	Unit	Conclusion
1003	0.28 (Progressive)	mg/L	DATA



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Note:

mg/L = milligram per liter

Foundational Limit: 5 mg/L; Progressive Limit: 1 mg/L; Aspirational Limit: 0.1 mg/L

Oil and Grease

Test Method : Reference to ISO 9377-2

Tested Item(s)	Result	Unit	Conclusion
1003	1.29 (Progressive)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 10 mg/L; Progressive Limit: 2 mg/L; Aspirational Limit: 0.5 mg/L

Phenol

Test Method : Reference to APHA 5530B

Tested Item(s)	Result	Unit	Conclusion
1003	ND (Aspirational)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 0.5 mg/L; Progressive Limit: 0.01 mg/L; Aspirational Limit: 0.001 mg/L

Coliform

Test Method : Reference to ISO 9308-1

Tested Item(s)	Result	Unit	Conclusion
1003	20 (Aspirational)	CFU/ 100 mL	DATA

Note:

CFU100 mL = Colony Forming Unit per 100 milliliters

Foundational Limit: 400 / 100 ml; Progressive Limit: 100 / 100 ml; Aspirational Limit: 25 / 100 ml;



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Foam

Test Method : Visual

Tested Item(s)	Result	Unit	Conclusion
1003	No foam (Comply with ZDHC WWG requirements)	-	DATA

ANIONS - Cyanide

Test Method : Reference to APHA 4500-CN (waste water)

Tested Item(s)	Result	Unit	Conclusion
1003	0.006 (Aspirational)	mg/L	DATA
1004	ND	mg/Kg	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 0.2 mg/L; Progressive Limit: 0.1 mg/L; Aspirational Limit: 0.05 mg/L

ANIONS - Sulfide

Test Method : Reference to APHA 4500 S²-D

Tested Item(s)	Result	Unit	Conclusion
1003	0.02 (Progressive)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 0.5 mg/L; Progressive Limit: 0.05 mg/L; Aspirational Limit: 0.01 mg/L

ANIONS - Sulfite

Test Method : Reference to U. S. EPA 377.1

Tested Item(s)	Result	Unit	Conclusion
1003	0.06 (Aspirational)	mg/L	DATA

Note:

mg/L = milligram per liter

Foundational Limit: 2 mg/L; Progressive Limit: 0.5 mg/L; Aspirational Limit: 0.2 mg/L



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Dry mass (total solids)

Test Method : Reference to US EPA 160.3

Tested Item(s)	Result	Unit	Conclusion
I004	67	%	DATA



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1B) Conventional Parameters – METALS

Heavy Metals	1001 (mg/L)	1002 (mg/L)	1003 (mg/L)	1004(mg/Kg)
Antimony(Sb) Foundational Limit: 0.1 mg/L; Progressive Limit: 0.05 mg/L; Aspirational Limit: 0.01 mg/L	N/A	0.015 (Progressive)	0.007 (Aspirational)	
Chromium(Cr), total Foundational Limit: 0.2 mg/L; Progressive Limit: 0.1 mg/L; Aspirational Limit: 0.05 mg/L		0.1 (Progressive)	0.095 (Progressive)	
Cobalt(Co) Foundational Limit: 0.05 mg/L; Progressive Limit: 0.02 mg/L; Aspirational Limit: 0.01 mg/L		ND (Aspirational)	ND (Aspirational)	
Copper(Cu) Foundational Limit: 1 mg/L; Progressive Limit: 0.5 mg/L; Aspirational Limit: 0.25 mg/L		0.07 (Aspirational)	0.18 (Aspirational)	
Nickel (Ni) Foundational Limit: 0.2 mg/L; Progressive Limit: 0.1 mg/L; Aspirational Limit: 0.05 mg/L		0.07 (Progressive)	0.03 (Aspirational)	
Silver (Ag) Foundational Limit: 0.1 mg/L; Progressive Limit: 0.05 mg/L; Aspirational Limit: 0.005 mg/L		ND (Aspirational)	ND (Aspirational)	
Zinc(Zn) Foundational Limit: 5 mg/L; Progressive Limit: 1 mg/L; Aspirational Limit: 0.5 mg/L		0.68 (Progressive)	0.91 (Progressive)	
Arsenic (As) Foundational Limit: 0.05 mg/L; Progressive Limit: 0.01 mg/L; Aspirational Limit: 0.005 mg/L	ND (Aspirational)	ND (Aspirational)	0.002 (Aspirational)	ND
Cadmium(Cd) Foundational Limit: 0.1 mg/L; Progressive Limit: 0.05 mg/L; Aspirational Limit: 0.01 mg/L	ND (Aspirational)	ND (Aspirational)	ND (Aspirational)	ND
Lead(Pb) Foundational Limit: 0.1 mg/L; Progressive Limit: 0.05 mg/L; Aspirational Limit: 0.01 mg/L	0.1 (Foundational)	0.012 (Progressive)	0.008 (Aspirational)	2.7
Mercury (Hg) Foundational Limit: 0.01 mg/L; Progressive Limit: 0.005 mg/L; Aspirational Limit: 0.001 mg/L	ND (Aspirational)	ND (Aspirational)	ND (Aspirational)	ND
Chromium VI(CrVI) Foundational Limit: 0.05 mg/L; Progressive Limit: 0.005 mg/L; Aspirational Limit: 0.001 mg/L	ND (Aspirational)	0.0044 (Progressive)	ND (Aspirational)	0.072



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Others Priority Chemical Groups

ZDHC MRSL Substances	1001	1002	1003	1004
2A) APs and APEOs	N/A	ND	ND	ND
2B) Chlorobenzenes and Chlorotoluenes	N/A	ND	ND	ND
2C) Chlorophenols	N/A	ND	ND	ND
2D) Azo Dyes	N/A	ND	ND	ND
2E) Carcinogenic Dyes	N/A	ND	ND	ND
2F) Disperse Dyes	N/A	ND	ND	ND
2G) Flame Retardants	N/A	ND	ND	ND
2H) Glycols	N/A	ND	ND	ND
2I) Halogenated Solvents	N/A	ND	ND	ND
2J) Organotin Compounds	N/A	ND	ND	ND
2K) Perfluorinated and Polyfluorinated	N/A	ND	ND	ND
2L) Phthalates	N/A	ND	ND	ND
2M) Poly Aromatic Hydrocarbons	N/A	ND	ND	ND
2N) Volatile Organic Compounds	N/A	ND	ND	ND

Remark :

- Test method, reporting limit and list of chemical are summarized in tables of Appendix B.
- ND = Not detected (Please refer to reporting limit shown in Appendix B.).
- ppb = part(s) per billion; ppm = part(s) per million
- NR = Not request
- N/A - Not Applicable

APPENDIX A- Photo of the Sample/ Sampling Location

(I001) Sampling Point

24°52'26.9"N
67°16'08.5"E



(I001) Sampling Point Surrounding Environment

24°52'26.9"N
67°16'08.5"E



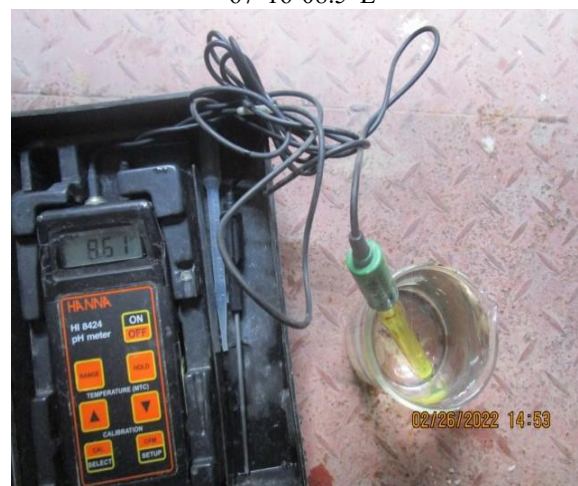
(I001) All sampled bottles with label

24°52'26.9"N
67°16'08.5"E

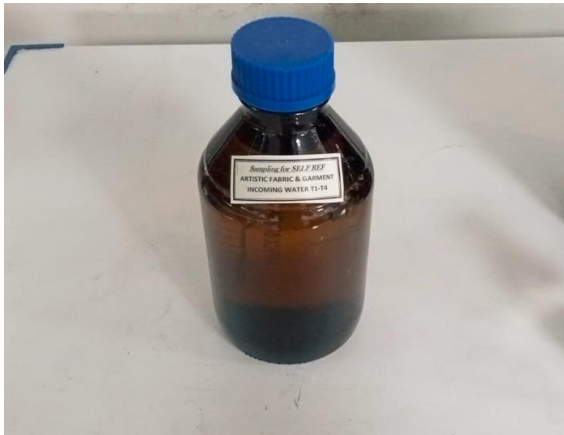


(I001) pH value

24°52'26.9"N
67°16'08.5"E



(I001) Sample for Phthalate Testing



(I001) Packaging



(I002) Sampling Point

24°52'26.9"N

67°16'08.5"E



(I002) Sampling Point Surrounding Environment

24°52'26.9"N

67°16'08.5"E



(I002) All sampled bottles with label

24°52'26.9"N

67°16'08.5"E



(I002) pH value

24°52'26.9"N

67°16'08.5"E



(I002) Sample for Phthalate Testing
24°52'26.9"N
67°16'08.5"E



(I002) Packaging



(I003) Sampling Point
24°52'26.9"N
67°16'08.5"E



(I003) Sampling Point Surrounding Environment
24°52'26.9"N
67°16'08.5"E



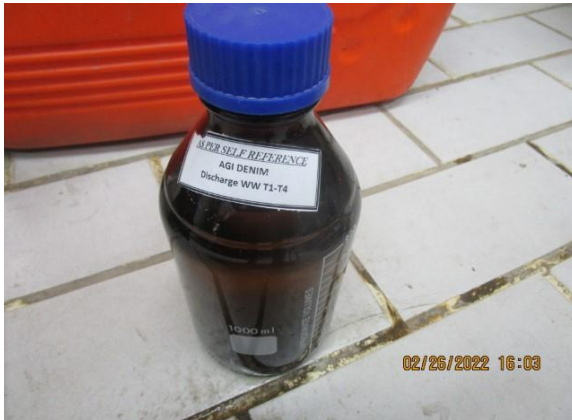
(I003) All sampled bottles with label
24°52'26.9"N
67°16'08.5"E



(I003) pH value
24°52'26.9"N
67°16'08.5"E



(I003) Sample for Phthalate Testing
24°52'26.9"N
67°16'08.5"E



(I003) Sample for Phthalate Testing



(I004) Sampling Point
24°52'26.9"N
67°16'08.5"E



(I004) Sampling Point Surrounding Environment
24°52'26.9"N
67°16'08.5"E



(I004) All sampled bottles with label
24°52'26.9"N
67°16'08.5"E



(I004) Sample for Phthalate Testing
24°52'26.9"N
67°16'08.5"E





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APPENDIX B

Group	Substance (Testing parameter)	CAS No.	Report Limit		Name of the testing method
			Wastewater (ug/L)/(ppb)	Sludge (mg/kg)/(ppm)	
2A. Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers	Octylphenol OP, mixed isomers	Various (incl. 140-66-9, 1806-26-4, 27193-28-8)	5	0.2	NP/OP: ISO 18857-2 (modified dichloromethane extraction) or ASTM D7065 (GC/MS or LC/MS(-MS))
	Nonylphenol NP	Various (incl. 104-40-5, 11066-49-2, 25154-52-3, 84852-15-3)	5	0.2	
	Octylphenol Ethoxylates OPEO (2-16)	Various (incl. 9002-93-1, 9036-19-5, 68987-90-6)	5	0.2	OPEO/NPEO: ISO18857-2 or ASTM D7065(LC/MS; GC/MS or LC/MSMS for n=1,2)
	Nonylphenol Ethoxylates NPEO (2-18)	Various (inc. 9016-45-9, 26027-38-3, 37205-87-1, 68412-54-4, 127087-87-0)	5	0.2	
2B. Chlorobenzenes and Chlorotoluenes	Chlorobenzene	108-90-7	0.2	0.1	USEPA 8260B,8270D. Dichloromethane extraction followed by GC/MS
	Dichlorobenzene	Various	0.2	0.1	
	Trichlorobenzene	Various	0.2	0.1	
	Tetrachlorobenzene	Various	0.2	0.1	
	1,2-Dichlorobenzene	95-50-1	0.2	0.1	
	1,3-Dichlorobenzene	541-73-1	0.2	0.1	
	1,4-Dichlorobenzene	106-46-7	0.2	0.1	
	1,2,3-Trichlorobenzene	87-61-6	0.2	0.1	
	1,2,4-Trichlorobenzene	120-82-1	0.2	0.1	
	1,3,5-Trichlorobenzene	108-70-3	0.2	0.1	
	1,2,3,4-Tetrachlorobenzene	634-66-2	0.2	0.1	
	1,2,3,5-Tetrachlorobenzene	634-90-2	0.2	0.1	
	1,2,4,5-Tetrachlorobenzene	95-94-3	0.2	0.1	
	Pentachlorobenzene	608-93-5	0.2	0.1	
	Hexachlorobenzene	1198-74-1	0.2	0.1	
	2-Chlorotoluene	95-49-8	0.2	0.1	
	3-Chlorotoluene	108-41-8	0.2	0.1	
	4-Chlorotoluene	106-43-4	0.2	0.1	
	2,3-Dichlorotoluene	32768-54-0	0.2	0.1	
	2,4-Dichlorotoluene	95-73-8	0.2	0.1	
	2,5-Dichlorotoluene	19398-61-9	0.2	0.1	
	2,6-Dichlorotoluene	118-69-4	0.2	0.1	
	3,4-Dichlorotoluene	95-75-0	0.2	0.1	
	3,5-Dichlorotoluene	25186-47-4	0.2	0.1	
	2,3,4-Trichlorotoluene	7359-72-0	0.2	0.1	
	2,3,6-Trichlorotoluene	2077-46-5	0.2	0.1	
	2,4,5-Trichlorotoluene	6639-30-1	0.2	0.1	
	2,4,6-Trichlorotoluene	23749-65-7	0.2	0.1	
	3,4,5-Trichlorotoluene	21472-86-6	0.2	0.1	
	2,3,4,5-Tetrachlorotoluene	76057-12-0	0.2	0.1	
	2,3,5,6-Tetrachlorotoluene	29733-70-8	0.2	0.1	

Group	Substance (Testing parameter)	CAS No.	Report Limit		Name of the testing method
			Wastewater (ug/L)/(ppb)	Sludge (mg/kg)/(ppm)	
	2,3,4,6-Tetrachlorotoluene	875-40-1	0.2	0.1	
	Pentachlorotoluene	877-11-2	0.2	0.1	
2C. Chlorophenols	2-Chlorophenol	95-57-8	0.5	0.025	USEPA 8270 D Solvent extraction, derivatisation with KOH, acetic anhydride followed by GC/MS
	3-Chlorophenol	108-43-0	0.5	0.025	
	4-Chlorophenol	106-48-9	0.5	0.025	
	2,3-Dichlorophenol	576-24-9	0.5	0.025	
	2,4-Dichlorophenol	120-83-2	0.5	0.025	
	2,5-Dichlorophenol	583-78-8	0.5	0.025	
	2,6-Dichlorophenol	87-65-0	0.5	0.025	
	3,4-Dichlorophenol	95-77-2	0.5	0.025	
	3,5-Dichlorophenol	591-35-5	0.5	0.025	
	2,3,4-Trichlorophenol	15950-66-0	0.5	0.025	
	2,3,5-Trichlorophenol	933-78-8	0.5	0.025	
	2,3,6-Trichlorophenol	933-75-5	0.5	0.025	
	2,4,5-Trichlorophenol	95-95-4	0.5	0.025	
	2,4,6-Trichlorophenol	88-06-2	0.5	0.025	
	3,4,5-Trichlorophenol	609-19-8	0.5	0.025	
	2,3,4,5-Tetrachlorophenol	4901-51-3	0.5	0.025	
	2,3,4,6-Tetrachlorophenol	58-90-2	0.5	0.025	
	2,3,5,6-Tetrachlorophenol	935-95-5	0.5	0.025	
	Pentachlorophenol (PCP)	87-86-5	0.5	0.025	
	Tetrachlorophenol (TeCP)	Various (incl. 25167-83-3)	0.5	0.025	
2D. Dyes - Azo (Forming Restricted Amines)	4,4'-Methylene-bis-(2-chloro-aniline)	101-14-4	0.1	0.1	EN 14362. Reduction step with Sodiumdithionite, solvent extraction, GC/MS or LC/MS
	4,4'-methylenedianiline	101-77-9	0.1	0.1	
	4,4'-Oxydianiline	101-80-4	0.1	0.1	
	4-Chloroaniline	106-47-8	0.1	0.1	
	3,3'-Dimethoxybenzidine	119-90-4	0.1	0.1	
	3,3'-Dimethylbenzidine	119-93-7	0.1	0.1	
	6-methoxy-m-toluidine (p-Cresidine)	120-71-8	0.1	0.1	
	2,4,5-Trimethylaniline	137-17-7	0.1	0.1	
	4,4'-Thiodianiline	139-65-1	0.1	0.1	
	4-Aminoazobenzene	60-09-3	0.1	0.1	
	4-Methoxy-m-phenylenediamine	615-05-4	0.1	0.1	
	4,4'-Methylene-di-o-toluidine	838-88-0	0.1	0.1	
	2,6-Xylidine	87-62-7	0.1	0.1	
	o-Anisidine	90-04-0	0.1	0.1	
	2-Naphthylamine	91-59-8	0.1	0.1	
	3,3'-Dichlorobenzidine	91-94-1	0.1	0.1	
	4-Aminodiphenyl	92-67-1	0.1	0.1	
	Benzidine	92-87-5	0.1	0.1	
	o-Toluidine	95-53-4	0.1	0.1	
	2,4-Xylidine	95-68-1	0.1	0.1	
	4-Chloro-o-toluidine	95-69-2	0.1	0.1	
	4-Methyl-m-phenylenediamine	95-80-7	0.1	0.1	
	o-Aminoazotoluene	97-56-3	0.1	0.1	
	5-nitro-o-toluidine	99-55-8	0.1	0.1	
2E. Dyes-	C.I. Direct Black 38	1937-37-7	500	1	Liquid Extraction



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Group	Substance (Testing parameter)	CAS No.	Report Limit		Name of the testing method
			Wastewater (ug/L)/(ppb)	Sludge (mg/kg)/(ppm)	
Carcinogenic or Equivalent Concern	C.I. Direct Blue 6	2602-46-2	500	1	LC/MS
	C.I. Acid Red 26	3761-53-3	500	1	
	C.I. Basic Red 9	569-61-9	500	1	
	C.I. Direct Red 28	573-58-0	500	1	
	C.I. Basic Violet 14	632-99-5	500	1	
	C.I. Disperse Blue 1	2475-45-8	500	1	
	C.I. Disperse Blue 3	2475-46-9	500	1	
	C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)	2580-56-5	500	1	
	C.I. Basic Green 4 (malachite green chloride)	569-64-2	500	1	
	C.I. Basic Green 4 (malachite green oxalate)	2437-29-8	500	1	
	C.I. Basic Green 4 (malachite green)	10309-95-2	500	1	
	Disperse Orange 11	82-28-0	500	1	
2F. Dyes-disperse (sensitizing)	Disperse Yellow 1	119-15-3	50	1	Liquid Extraction LC/MS
	Disperse Blue 102	12222-97-8	50	1	
	Disperse Blue 106	12223-01-7	50	1	
	Disperse Yellow 39	12236-29-2	50	1	
	Disperse Orange 37/59/76	13301-61-6	50	1	
	Disperse Brown 1	23355-64-8	50	1	
	Disperse Orange 1	2581-69-3	50	1	
	Disperse Yellow 3	2832-40-8	50	1	
	Disperse Red 11	2872-48-2	50	1	
	Disperse Red 1	2872-52-8	50	1	
	Disperse Red 17	3179-89-3	50	1	
	Disperse Blue 7	3179-90-6	50	1	
	Disperse Blue 26	3860-63-7	50	1	
	Disperse Yellow 49	54824-37-2	50	1	
	Disperse Blue 35	12222-75-2	50	1	
	Disperse Blue 124	61951-51-7	50	1	
	Disperse Yellow 9	6373-73-5	50	1	
	Disperse Orange 3	730-40-5	50	1	
	Disperse Blue 35	56524-77-7	50	1	
2G. Flame Retardants	Tris(2-chloroethyl) phosphate (TCEP)	115-96-8	5	1	ISO 22032, USEPA527 and USEPA8321B. Dichloromethane extraction GC/MS or LC/MS(-MS)
	Decabromodiphenyl ether (DecaBDE)	1163-19-5	5	1	
	Tris(2,3-dibromopropyl) phosphate (TRIS/TDBPP)	126-72-7	5	1	
	Pentabromodiphenyl ether (PentaBDE)	32534-81-9	5	1	
	Octabromodiphenyl ether (OctaBDE)	32536-52-0	5	1	
	Bis(2,3-dibromopropyl) phosphate (BIS/BDBPP)	5412-25-9	5	1	
	Tris(aziridinyl)-phosphineoxide (TEPA)	545-55-1	5	1	
	Polybromobiphenyls (PBBs)	59536-65-1	5	1	
	Tetrabromobisphenol A	79-94-7	5	1	

Group	Substance (Testing parameter)	CAS No.	Report Limit		Name of the testing method
			Wastewater (ug/L)/(ppb)	Sludge (mg/kg)/(ppm)	
	(TBBPA)				
	Hexabromocyclododecane (HBCDD)	3194-55-6	5	1	
	2,2-Bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0	5	1	
	Tris(1,3-dichloroisopropyl) phosphate (TDCP)	13674-87-8	5	1	
	Short chain chlorinated paraffins (SCCPs)	85535-84-8	5	1	
2H. Glycols	Bis(2-methoxyethyl)-ether	111-96-6	50	5	US EPA 8270 Liquid Extraction LC/MS
	2-ethoxyethanol	110-80-5	50	5	
	2-ethoxyethyl acetate	111-15-9	50	5	
	Ethylene glycol dimethyl ether	110-71-4	50	5	
	2-methoxyethanol	109-86-4	50	5	
	2-methoxyethylacetate	110-49-6	50	5	
	2-methoxypropylacetate	70657-70-4	50	5	
2I. Halogenated Solvents	Triethylene glycol dimethyl ether	112-49-2	50	5	USEPA 8260B Headspace GC/MS or Purgeand-Trap-GC/MS
	1,2-Dichloroethane	107-06-2	1	1	
	Methylene Chloride	75-09-2	1	1	
	Trichloroethylene	79-01-6	1	1	
2J. Organotin Compounds	Tetrachloroethylene	127-18-4	1	1	ISO 17353 Derivatisation with NaB(C ₂ H ₅) GC/MS
	Mono-, di- and trimethyltin derivatives	Various (incl. 993-16-8, 753-73-1, 1066-45-1)	0.01	0.1	
	Mono-, di- and tri-butyltin derivatives	Various (incl. 78763-54-9, 1118-46-3, 1002-53-5, 683-18-1, 36643-28-4, 56573-85-4, 1461-22-9)	0.01	0.1	
	Mono-, di- and tri-phenyltin derivatives	Various (1124-19-2, 1011-95-6, 6381-06-2, 1135-99-5, 892-20-6, 639-58-7, 668-34-8)	0.01	0.1	
2K. Perfluorinated and Polyfluorinated Chemicals (PFCs)	Mono-, di- and tri-octyltin derivatives	Various (incl. 15231-44-4, 3091-25-6, 94410-05-6, 3542-36-7, 869-59-0, 2587-76-0)	0.01	0.1	DIN 38407-42 (modified) Ionic PFC: Concentration or direct injection, LC/MS(-MS); Non-ionic PFC (FTOH): derivatisation with acetic anhydride, followed by GC/MS
	Perfluorooctanesulfonic acid (PFOS)	355-46-4, 432-50-7	0.01	0.05	
	Perfluoro-n-octanoic acid (PFOA)	335-67-1/ 335-95-5	0.01	0.05	
	Perfluorobutanesulfonic acid (PFBS)	29420-49-3, 29420-43-3	0.01	0.05	
	Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	0.01	0.05	
	8:2 FTOH	678-39-7	1	0.5	
2L. Phthalates (including all other esters of phthalic acid)	6:2 FTOH	647-42-7	1	0.5	US EPA 8270D, ISO 18856 Dichloromethane extraction GC/MS
	Di-2-ethylhexyl phthalate (DEHP)	117-81-7	10	1	
	Dimethoxyethyl phthalate (DMEP)	117-82-8	10	1	
	Di-n-octyl phthalate	117-84-0	10	1	

Group	Substance (Testing parameter)	CAS No.	Report Limit		Name of the testing method
			Wastewater (ug/L)/(ppb)	Sludge (mg/kg)/(ppm)	
	(DNOP)				
	Di-iso-decyl phthalate (DIDP)	26761-40-0	10	1	
	Di-iso-nonyl phthalate (DINP)	28553-12-0	10	1	
	Di-n-hexyl phthalate (DnHP)	84-75-3	10	1	
	Dibutyl phthalate (DBP)	84-74-2	10	1	
	Butyl benzyl phthalate (BBP)	85-68-7	10	1	
	Dinonyl phthalate (DNP)	84-76-4	10	1	
	Diethyl phthalate (DEP)	84-66-2	10	1	
	Di-n-propyl phthalate (DPRP)	131-16-8	10	1	
	Di-iso-butyl phthalate (DIBP)	84-69-5	10	1	
	Di-cyclohexyl phthalate (DCHP)	84-61-7	10	1	
	Di-iso-octyl phthalate (DIOP)	27554-26-3	10	1	
	1,2-benzenedicarboxylic acid, di-C7-11-branched and linearalkyl esters (DHNUP)	68515-42-4	10	1	
	1,2-benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6	10	1	
2M. Poly Aromatic Hydrocarbons (PaHs)	Benzo[a]pyrene (BaP)	50-32-8	1	1	DIN 38407-39 Solvent extraction GC/MS
	Anthracene	120-12-7	1	1	
	Pyrene	129-00-0	1	1	
	Benzo[ghi]perylene	191-24-2	1	1	
	Benzo[e]pyrene	192-97-2	1	1	
	Indeno[1,2,3-cd]pyrene	193-39-5	1	1	
	Benzo[j]fluoranthene	205-82-3	1	1	
	Benzo[b]fluoranthene	205-99-2	1	1	
	Fluoranthene	206-44-0	1	1	
	Benzo[k]fluoranthene	207-08-9	1	1	
	Acenaphthylene	208-96-8	1	1	
	Chrysene	218-01-9	1	1	
	Dibenz[a,h]anthracene	53-70-3	1	1	
	Benzo[a]anthracene	56-55-3	1	1	
	Acenaphthene	83-32-9	1	1	
	Phenanthrene	85-01-8	1	1	
	Fluorene	86-73-7	1	1	
	Naphthalene	91-20-3	1	1	
2N. Volatile Organic Compound (VOCs)	Benzene	71-43-2	1	0.1	ISO 11423-1 Headspace- or Purge-and-Trap- GC/MS
	Xylene	1330-20-7	1	0.1	
	o-cresol	95-48-7	1	0.1	
	p-cresol	106-44-5	1	0.1	
	m-cresol	108-39-4	1	0.1	
1A. Conventional Parameters	Temperature	—	N/A	N/A	Apply the standard methods that best
	TSS	—	N/A	N/A	



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Group	Substance (Testing parameter)	CAS No.	Report Limit		Name of the testing method
			Wastewater (ug/L)/(ppb)	Sludge (mg/kg)/(ppm)	
	COD	—	N/A	N/A	apply to the region (ISO, EU, US, China), please refer to ZDHC Wastewater Guidelines for more details on the testing method and the levels (Exceeded Foundational Limit, Foundational, Progressive, and Aspirational).
	Total-N	—	N/A	N/A	
	pH	—	N/A	N/A	
	Color [m ⁻¹] (436nm; 526nm; 620nm)	—	N/A	N/A	
	BOD5	—	N/A	N/A	
	Ammonium-N	—	N/A	N/A	
	Total-P	—	N/A	N/A	
	AoX	—	N/A	N/A	
	Oil and Grease	—	N/A	N/A	
	Phenol	—	N/A	N/A	
	Coliform(bacteria/100ml)	—	N/A	N/A	
	Persistent Foam	—	Not visible	Not visible	
	ANIONS				
	Sulfide	—	N/A	N/A	
	Sulfite	—	N/A	N/A	
Group	Substance (Testing parameter)	CAS No.	Report Limit		Name of Testing Method
			Wastewater (mg/L)/(ppm)	Sludge (mg/kg)/(ppm)	
1B. Conventional Parameters - METALS	Antimony(Sb)	7440-36-0	0.001	N/A	Various Acid Digestion with ICP analysis please refer to ZDHC Wastewater Guidelines for more details on the testing method and the levels (Exceeded Foundational Limit, Foundational, Progressive, and Aspirational).
	Chromium(Cr), total	7440-47-3	0.001	N/A	
	Cobalt(Co)	7440-48-4	0.001	N/A	
	Copper(Cu)	7440-50-8	0.001	N/A	
	Nickel(Ni)	7440-02-0	0.001	N/A	
	Silver(Ag)	7440-22-4	0.001	N/A	
	Zinc(Zn)	7440-66-6	0.001	N/A	
	Arsenic(As)	7440-38-2	0.001	1	
	Cadmium(Cd)	7440-43-9	0.0001	1	
	Lead(Pb)	7439-92-1	0.001	1	
	Mercury(Hg)	7439-97-6	0.00005	0.1	Various Solvent extraction and derivatisation followed by UV analysis With reference to APHA 4500 CN—B,C&E and followed by UV analysis
	Chromium VI(CrVI)	18540-29-9	0.001	1	
	Cyanide(CN-))	Various (incl. 57-12-5)	0.02	0.5	

Note / Key :

ppb = part(s) per billion ; ppm – part(s) per million
 U. S. EPA = United States Environmental Protection Agency
 APHA = American Public Health Association



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APPENDIX C- Onsite Field Data Record Sheet

FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING)		CPSD-AN-00613-DATA 04		
		Issue Date:		
		Version No.:	13	
		Business Line:	Analytical	
General Data				
Laboratory Sample Number:	7322-060-0012			
Client Name:	ZDHC/SELF			
Field Contact Person:	MR. IMRAN AHMED Phone No: 0313-2168589			
Project (Facility Name and Address):	ARTISTIC GARMENT INDUSTRIES PVT. LTD. SUBWAY 162-17 DEL. KHANDE, TAPPO BIN QASIM KARACHI.			
Sampling Location / Description:	INDUSTRY			
Sample Type:	Zero discharge with sampling plan			
Composite Sample / Grab sample (Please delete as appropriate):	Composite Sample			
Name of Sampler:	ARSHAD ALI			
Discharge mode:	Direct discharge to environment (Specify destination: River/Sea/Stream...) OR Indirect discharge to sewage treatment plant.			
Date of collection:	26-FEB-2022			
Factory Type:	Dyeing / Printing / Washing / Finishing Others (please specify): DYEING / FINISHING			
*Note: It would be selected more than one				
Field Data for Wastewater				
Arrival Time:	10:15	Departure Time:	16:40	
Field Parameters	pH: 8.61	Temp: 31.1 °C	Color: TRANSPARENT	
Control No. of field equipment				
Factory with effluent treatment plant:	Yes			
Sample matrix:	Incoming water (if required)			
	Wastewater before treatment			
	Wastewater after treatment - water at discharge point			
Sampler container number				
	1	2	3	
Recording time	ID	4	5	
	Time	6	7	
pH:	8.61			
Temp (°C):	31.1			
Color (visual estimation):	TRANS			
Flow rate (volume/time)				
Volume collected, mL	6000mL			
Total volume collected	6000mL	Remark: Total volume collected must be greater than total of sample size required		
Analysis Required and Preservation Method				
Tests (ZDHC MRSL Parameters)	Test required (Y)	Total of sample size	Type of container	Preservation method
Combined test or Individual test (Remark 4)	1. Phthalate	1000 mL total or 1000 mL each	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water and dried before use	Without adding acid Store sample at 6°C
	2. Chlorobenzenes, Chlorotoluenes & PAH			
	3. SCCPs			
	4. APS			
5. APEOs		100 mL		
6. Chlorophenols & Cresols		100 mL		
7. Flame retardant		500 mL		
8. Dyes		10 mL		
9. Glycol		50 mL		
10. *Pesticides		1000 mL		
11. *Nitrosamine		10 mL		
12. Banned Azodyes		2000 mL		
13. *Free primary aromatic amines		500 mL		
14. Organotin Compounds		500 mL		Add to pH 2 with HCl and store sample at 6°C
15. VOC & Halogenated Solvents (Remark 6)		10 mL	Amber Glass, washed with nitric acid	Fill to full container without air gap; acidity to pH 2 with HCl and store sample at 6°C
16. PFCs		2 mL	PE, washed with pesticide grade Acetone	Without adding acid Store sample at 6°C



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	FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING)		CPSD-AN-00613-DATA 04	
			Issue Date:	
			Version No.: 13	
			Business Line: Analytical	

Tests (Conventional Parameters)	Test required (V)	Total of sample size	Type of container	Preservation method
Combined test or Individual test (Remark 4)	17 Total suspended solids (TSS) 18 Total dissolved solids (TDS)	2000 mL total or 2000 mL each	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water and dried before use	Without adding acid Store sample at 6°C
19 5-day Biochemical Oxygen Demand (BOD5)		1000 mL		
20 Heavy Metals except Cr(VI) & Total-P (Remark 6)	✓	9 mL	PE, washed with nitric acid	Acidify to pH 2 with HNO ₃ and store at 6°C
21 Cr(VI)	✓	95 mL	Amber Glass, washed with pesticide grade acetone	Filter by 0.45µm filter in field, fill to full container without air gap, adjust pH to 9.0-9.5 by adding ammonium buffer. Store sample at 6°C
22 Cyanide		500 mL		Adjust pH 12 with 50% NaOH, add 0.05 mL of 10% Na ₂ S ₂ O ₃ , and store sample at 6°C
23 Chemical oxygen demand (COD)		150 mL		Acidify to pH 2 with H ₂ SO ₄ Store sample at 6°C
24 Phenols		500 mL	Amber Glass; washed with nitric acid	
25 Formaldehyde		25 mL		Fill to full container without air gap, acidify to pH 2 with H ₂ SO ₄ and store sample at 6°C
26 Sulfide (Remark 5)		50 mL	PE, washed with pesticide grade Acetone;	Fill to full container without air gap; add 2 drops of 2M zinc acetate, adjust pH to 9 with 6M NaOH Store sample at 6°C
27 Adsorbable organically bound halogens (AOX)		100 mL	Amber Glass, washed with nitric acid	Add 0.05 mL of 10% Na ₂ S ₂ O ₃ , acidify to pH 2 with H ₂ SO ₄ , Store sample at 6°C
28 Total Coliform (Remark 6)		125 mL	PE, clean, sterile, non-reactive	Add 0.05 mL of 10% Na ₂ S ₂ O ₃ , Store sample at 6°C
29 Persistent foam		N A	Foam higher than 45 cm (visual estimation):	Yes / No
30 Sulfite		100 mL	Amber Glass, washed with pesticide grade acetone	Add 1mL of 2.5% EDTA, 0.5g zinc acetate Store sample at 6°C
31 Total-N		100 mL	Amber Glass with wide-mouth PTFE lid; washed with nitric acid;	Acidify to pH 2 with H ₂ SO ₄ Store sample at 6°C
32 Ammonium-N		500 mL		
33 Oil and Grease & Total Hydrocarbon		1000 mL	Amber Glass; washed with nitric acid;	Acidify to pH 2 with HCl Store sample at 6°C
34 Luminus Bacteria Toxicity		1000 mL		
35 Sulphate		100 mL	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water and dried before use	Without adding acid Store sample at 6°C
36 Chloride		100 mL		
37 Color		100 mL		
38 Others:				
Observation/ Remark				

Remarks:

- Individual sampling can be performed upon request
- The minimum sampling time for 2016 ZDHC guideline is 6 hours with no more than one hour between discrete samples. Sampling time could be adjusted upon request.
- Scope of ZDHC guideline: Parameter 1, 2, 4-9, 12, 14-17, 19-24, 26-33
Scope of synthetic leather industry: Parameter 1, 2, 4-9, 12, 14-17, 19-33
Scope of MMCF: Parameter 4, 5, 15, 17, 19-21, 23, 24, 26, 27, 31-34, 37
Free primary aromatic amine, pesticides, nitrosamine and TDS are not in the scope of ZDHC Guideline, they are tested upon request.
- Refer to CPSD-AN-G00019-STIP01, locations with those CPSD test capability inside TCD matrix can perform the combined test.
- Refer to CPSD-AN-000570-MTHD for additional pretreatment of sulfide if only dissolved sulfide is required to be tested.
- Refer to CPSD-AN-00613-MTHD for preparation of field blank for specific parameters.

Recorded by:

ARSHAD AG

Full name:

Date:

Feb 26, 2022

Comment from factory:

Acknowledgement by factory:

I hereby confirmed that Bureau Veritas has completed the stated sampling activity at captioned date, time and location. All sample(s) is/are collected in designated container(s) and without any observation in leakage. Sample(s) collected by Bureau Veritas is/are stored in portable freezer / fridge that is maintained in 1-6°C

Signature of Factory Representative:



Imran Muneed

Full Name:

Date:

26/2/2022

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		Issue Date:
		Version No.: 13
		Business Line: Analytical

General Data

Laboratory Sample Number: 7322-060-0012
Client Name: ZDHC / SELF
Field Contact Person: MR. IMRAN MURAD Phone No: 0313-2168589
Project (Facility Name and Address): ARTISTIC GARMENT INDUSTRIES (AGIDENIM) PVT. LTD, SURVAY 12-17 DEH, KHANOD TAPPO BIN QASIM KARACHI.
Sampling Location / Description: WASTEWATER BEFORE TREATMENT
Sample Identification: Zero discharge with sampling plan
Sample Type: Composite Sample / Grab sample (Please delete as appropriate)
Name of Sampler: ABSHAD ALI
Discharge mode: Direct discharge to environment (Specify destination: River, Sea, Stream...) TOWARDS ETP
Date of collection: 26 FEB 2022
Factory Type: Dyeing / Printing / Washing / Finishing Others (please specify): DYEING / FINISHING
*Note: It would be selected more than one

Field Data for Wastewater

Field Data for Wastewater									
Arrival Time:		10:15		Departure Time:		16:40			
Field Parameters		pH: 11.71		Temp: 33.95 °C		Color: BLACK		Flow rate: 123.5 (volume/min)	
Control No. of field equipment									
Factory with effluent treatment plant:		<input checked="" type="checkbox"/> Yes				<input type="checkbox"/> No			
Sample matrix:		<input type="checkbox"/> Incoming water (if required)							
		<input checked="" type="checkbox"/> Wastewater before treatment							
		<input type="checkbox"/> Wastewater after treatment – water at discharge point							
Sampler container number									
		1	2	3	4	5	6	7	8
Recording time		ID							
		Time	10:35	11:35	12:39	13:35	14:41	15:38	
pH:		11.95	11.03	11.92	12.04	11.77	11.58		
Temp (°C):		34.2	33.7	32.9	33.8	34.3	34.8		
Color (visual estimation):		BLACK	BLACK	BLACK	BLACK	BLACK	BLACK		
Flow rate (volume/time)		110	125	127	129	128	122		
Volume collected, mL		100 mL	100 mL	100 mL	100 mL	100 mL	100 mL		
Total volume collected		600 mL	Remark: Total volume collected must be greater than total of sample size required						

Analysis Required and Preservation Method

Tests (ZDHC MRSL Parameters)	Test required (v)	Total of sample size	Type of container	Preservation method
Combined test or Individual test (Remark 4)	1. Phthalate	1000 mL total or 1000 mL each	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water and dried before use	Without adding acid Store sample at 6°C
	2. Chlorobenzenes, Chlorotoluene & PAH			
	3. SCCPs			
	4. APS			
5. APEOs	✓	100 mL		
6. Chlorophenols & Cresols	✓	100 mL		
7. Flame retardant	✓	500 mL		
8. Dyes	✓	10 mL		
9. Glycol	✓	50 mL		
10. *Pesticides		1000 mL		
11. *Nitrosamine		10 mL		
12. Banned Azodyes	✓	2000 mL	Amber Glass, washed with nitric acid	Acidify to pH 2 with HCl and store sample at 6°C
13. *Free primary aromatic amines		500 mL		Fill to full container without air gap; acidify to pH 2 with HCl and store sample at 6°C
14. Organotin Compounds	✓	500 mL	PE, washed with pesticide grade Acetone	Without adding acid Store sample at 6°C
15. VOC & Halogenated Solvents (Remark 6)	✓	10 mL		
16. PFCs	✓	2 mL		



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	FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING)		CPSD-AN-00613-DATA 04	
			Issue Date:	
			Version No.: 13	
			Business Line: Analytical	

Tests (Conventional Parameters)	Test required (v)	Total of sample size	Type of container	Preservation method
Combined test or Individual test (Remark 4)	17. Total suspended solids (TSS) 18. Total dissolved solids (TDS)	2000 mL total or 2000 mL each	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water and dried before use	Without adding acid Store sample at 6°C
19. 5-day Biochemical Oxygen Demand (BOD5)		1000 mL		
20. Heavy Metals except Cr(VI) & Total-P (Remark 6)	✓	9 mL	PE, washed with nitric acid	Acidify to pH 2 with HNO ₃ and store at 6°C
21. Cr(VI)	✓	95 mL	Amber Glass, washed with pesticide grade acetone	Filter by 0.45µm filter in field, fill to full container without air gap, adjust pH to 9.0-9.5 by adding ammonium buffer. Store sample at 6°C
22. Cyanide		500 mL		Adjust pH 12 with 50% NaOH, add 0.05 mL of 10% Na ₂ S ₂ O ₃ and store sample at 6°C
23. Chemical oxygen demand (COD)		150 mL	Amber Glass, washed with nitric acid	Acidify to pH 2 with H ₂ SO ₄ Store sample at 6°C
24. Phenols		500 mL		
25. Formaldehyde		25 mL		Fill to full container without air gap, acidify to pH 2 with H ₂ SO ₄ and store sample at 6°C
26. Sulfide (Remark 5)		50 mL	PE, washed with pesticide grade Acetone;	Fill to full container without air gap, add 2 drops of 2M zinc acetate, adjust pH to 9 with 6M NaOH Store sample at 6°C
27. Adsorbable organically bound halogens (AOX)		100 mL	Amber Glass, washed with nitric acid	Add 0.05 mL of 10% Na ₂ S ₂ O ₃ , acidify to pH 2 with H ₂ SO ₄ , Store sample at 6°C
28. Total Coliform (Remark 6)		125 mL	PE, clean, sterile, non-reactive	Add 0.05 mL of 10% Na ₂ S ₂ O ₃ , Store sample at 6°C
29. Persistent foam		N/A	Foam higher than 45 cm (visual estimation): Yes / No	
30. Sulfite		100 mL	Amber Glass, washed with pesticide grade acetone	Add 1 mL of 2.5% EDTA, 0.5g zinc acetate Store sample at 6°C
31. Total-N		100 mL	Amber Glass with wide-mouth PTFE lid, washed with nitric acid;	Acidify to pH 2 with H ₂ SO ₄ Store sample at 6°C
32. Ammonium-N		500 mL		
33. Oil and Grease & Total Hydrocarbon		1000 mL	Amber Glass; washed with nitric acid;	Acidify to pH 2 with HCl Store sample at 6°C
34. Luminous Bacteria Toxicity		1000 mL	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water and dried before use	Without adding acid Store sample at 6°C
35. Sulphate		100 mL		
36. Chloride		100 mL		
37. Color		100 mL		
38. Others:				

Observation/ Remark:

*Remarks:

- Individual sampling can be performed upon request
- The minimum sampling time for 2016 ZDHC guideline is 6 hours with no more than one hour between discrete samples. Sampling time could be adjusted upon request.
- Scope of ZDHC guideline: Parameter 1, 2, 4-9, 12, 14-17, 19-24, 26-33
Scope of synthetic leather industry: Parameter 1, 2, 4-9, 12, 14-17, 19-33
Scope of MMCF: Parameter 4, 5, 15, 17, 19-21, 23, 24, 26, 27, 31-34, 37
Free primary aromatic amine, pesticides, nitrosamine and TDS are not in the scope of ZDHC Guideline, they are tested upon request.
- Refer to CPSD-AN-G00019-STIP01, locations with those CPSD test capability inside TCD matrix can perform the combined test.
- Refer to CPSD-AN-000570-MTHD for additional pretreatment of sulfide if only dissolved sulfide is required to be tested.
- Refer to CPSD-AN-00613-MTHD for preparation of field blank for specific parameters.

Recorded by:

Date:

Full name:

Comment from factory:

For further improvement of temperature at discharge point we are in process of installing cooling towers.

Acknowledgement:

I hereby certify that Bureau Veritas has completed the stated sampling activity at captioned date, time and location. All sample(s) is/are collected in designated container(s) and without any observation in leakage. Sample(s) collected by Bureau Veritas is/are stored in portable freezer / fridge that is maintained in 1-6°C

Signature of Factory Representative:

Full Name:

Date:



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	FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING)	CPSD-AN-00613-DATA 04
		Issue Date:
		Version No.: 13
		Business Line: Analytical

General Data

Laboratory Sample Number:

Client Name:

Field Contact Person:

Project (Facility Name and Address):

Sampling Location / Description:

Sample Identification:

Sample Type:

Name of Sampler:

Discharge mode:

Date of collection:

Factory Type:

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ZDHC LSE
MR. IMRAN MURAD Phone No: 0313-2168589
ARTISTIC GARMENT INDUSTRIES PVT. LTD. SURVAY 169-13 DEH, KHANNO JAFFE, BIN QASIM KARACHI.
WASTEWATER AFTER TREATMENT
Zero discharge with sampling plan
Composite Sample / Grab sample (Please delete as appropriate)
ARSHAD ALI
Direct discharge to environment (Specify destination: River, Sea, Stream...) MALIR DRAIN
26 FEB - 2022
Dyeing / Printing / Washing / Finishing Others (please specify): DYEING / FINISHING
*Note: It would be selected more than one

Field Data for Wastewater

Arrival Time:	10:15	Departure Time:	16:40						
Field Parameters	pH: 8.0	Temp: 33.94 °C	Color: L YELLOW						
Control No. of field equipment			Flow rate: 119.8 (volume/min)						
Factory with effluent treatment plant:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
Sample matrix:	Incoming water (If required)								
	Wastewater before treatment								
	<input checked="" type="checkbox"/> Wastewater after treatment - water at discharge point								
Sampler container number									
Recording time	ID	1	2	3	4	5	6	7	8
	Time	10:40	11:30	12:33	13:29	14:38	15:34		
pH:	8.06	7.93	7.97	8.02	8.11	7.91			
Temp (°C):	34.01	33.8	34.2	33.4	33.7	34.5			
Color (visual estimation):	L YELLOW	L YELLOW	L YELLOW	L YELLOW	L YELLOW	L YELLOW			
Flow rate (volume/time)	118	112	117	119	125	128			
Volume collected, mL	3000 mL	3000 mL	3000 mL	3000 mL	3500 mL	3500 mL			
Total volume collected	19000 mL	Remark: Total volume collected must be greater than total of sample size required							

Analysis Required and Preservation Method

Tests (ZDHC MRSL Parameters)		Test required (V)	Total of sample size	Type of container	Preservation method
Combined test or Individual test (Remark 4)	1. Phthalate	✓	1000 mL total or 1000 mL each	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water and dried before use	Without adding acid Store sample at 6°C
	2. Chlorobenzenes, Chlorotoluene & PAH	✓			
	3. SCCPs	✓			
	4. APS	✓			
5. APEOs		✓	100 mL		
6. Chlorophenols & Cresols		✓	100 mL		
7. Flame retardant		✓	500 mL		
8. Dyes		✓	10 mL		
9. Glycol		✓	50 mL		
10. *Pesticides			1000 mL		
11. *Nitrosamine			10 mL		
12. Banned Azodyes		✓	2000 mL	Amber Glass, washed with nitric acid	Acidify to pH 2 with HCl and store sample at 6°C
13. *Free primary aromatic amines			500 mL		
14. Organotin Compounds		✓	500 mL	PE, washed with pesticide grade Acetone	Without adding acid Store sample at 6°C
15. VOC & Halogenated Solvents (Remark 6)		✓	10 mL		
16. PFCs		✓	2 mL		



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Tests (Conventional Parameters)		Test required (Y)	Total of sample size	Type of container	Preservation method
Combined test or Individual test (Remark 4)	17 Total suspended solids (TSS)	✓	2000 ml total or 2000 ml each	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water, and dried before use	Without adding acid Store sample at 6°C
	18 Total dissolved solids (TDS)				
19 5-day Biochemical Oxygen Demand (BOD5)		✓	1000 ml		
20 Heavy Metals except Cr(VI) & Total P (Remark 6)		✓	9 ml	PE, washed with nitric acid	Acidity to pH 2 with HNO ₃ and store at 6°C
21 Cr(VI)		✓	95 ml	Amber Glass, washed with pesticide grade acetone	Filter by 0.45µm filter, in field, fill to full container without air gap, adjust pH to 8.0-8.5 by adding ammonium buffer. Store sample at 6°C
22 Cyanide		✓	500 ml		Adjust pH 12 with 50% NaOH, add 0.05 ml of 10% Na ₂ S ₂ O ₃ and store sample at 6°C
23 Chemical oxygen demand (COD)		✓	150 ml	Amber Glass, washed with nitric acid	Acidity to pH 2 with H ₂ SO ₄ Store sample at 6°C
24 Phenols		✓	500 ml		Fill to full container without air gap, acidity to pH 2 with H ₂ SO ₄ and store sample at 6°C
25 Formaldehyde			25 ml		Fill to full container without air gap, acidity to pH 2 with H ₂ SO ₄ and store sample at 6°C
26 Sulfide (Remark 6)		✓	50 ml	PE, washed with pesticide grade Acetone	Fill to full container without air gap, add 2 drops of 3M zinc acetate, adjust pH to 8 with 6M NaOH. Store sample at 6°C
27 Adsorbable organically bound halogens (AOR)		✓	100 ml	Amber Glass, washed with nitric acid	Add 0.05 ml of 10% Na ₂ S ₂ O ₃ , acidity to pH 2 with H ₂ SO ₄ . Store sample at 6°C
28 Total Coliform (Remark 6)		✓	125 ml	PE, clean, sterile, non-reactive	Add 0.05 ml of 10% Na ₂ S ₂ O ₃ . Store sample at 6°C
29 Persistent foam		✓	N/A	Foam higher than 45 cm (visual estimation)	Yes / No
30 Sulfide		✓	100 ml	Amber Glass, washed with pesticide grade acetone	Add 1ml of 2.5% EDTA, 0.5g zinc acetate. Store sample at 6°C
31 Total N		✓	100 ml	Amber Glass with wide-mouth PTFE lid, washed with nitric acid	Acidity to pH 2 with H ₂ SO ₄ Store sample at 6°C
32 Ammonium-N		✓	500 ml		Acidity to pH 2 with HCl Store sample at 6°C
33 Oil and Grease & 1-methylpyrene		✓	1000 ml	Amber Glass, washed with nitric acid	
34 Luminescence Toxicity			1000 ml		
35 Sulphate			100 ml	Amber Glass, washed with nitric acid, rinsed thoroughly with distilled water and dried before use	Without adding acid Store sample at 6°C
36 Chloride			100 ml		
37 Color		✓	100 ml		
38 Others					

Observation/ Remark

Remarks

- Individual sampling can be performed upon request
- The minimum sampling time for 2016 ZOHG guideline is 6 hours with no more than one hour between discrete samples. Sampling time could be adjusted upon request
- Scope of ZOHG guideline: Parameter 1, 2, 4, 9, 12, 14, 17, 19-24, 26-33
Scope of synthetic leather industry: Parameter 1, 2, 4, 9, 12, 14, 17, 19-33
Scope of MMCF: Parameter 4, 5, 15, 17, 19-21, 23, 24, 26, 27, 31-34, 37
Free primary aromatic amine, pesticides, nitrosamine and TDS are not in the scope of ZOHG Guideline, they are tested upon request.
- Refer to CPSD-AN-000019-STIP01, locations with those CPSD test capability inside TCD matrix can perform the combined test.
- Refer to CPSD-AN-000570-MTHD for additional pretreatment of sulfide if only dissolved sulfide is required to be tested.
- Refer to CPSD-AN-00613-MTHD for preparation of field blank for specific parameters.

Recorded by

ARSHAD AFI

Full name

Date FEB. 26. 2022

Comment from factory

Acknowledgement by factory

I hereby confirm that Bureau Veritas has completed the stated sampling activity at captioned date, time and location. All sample(s) is/are collected in designated container(s) and without any observation in leakage. Sample(s) collected by Bureau Veritas is/are stored in portable freezer / fridge that is maintained in 1-6°C

Signature of Factory Representative

Full Name

Full Name

Date

26/2/2022

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	FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING)		CPSD-AN-00613-DATA 04	
			Issue Date:	
			Version No.: 13	
			Business Line: Analytical	

Field Data for Sludge

Arrival Time:	10:15	Departure Time:	16:40
Field Parameters	pH:	Temp: °C	Color: Black
Control No. of field equipment			

Analysis Required and Preservation Method

Factory with effluent treatment plant		<input checked="" type="checkbox"/> Yes		No		
Sample matrix		Sludge in clarifier (sedimentation tank)				
Sampler container number		03				
Recording time						
Tests (MRSL Parameter)		Test required (v)	Total of sample size	Type of container	Preservation method	
Combined test or Individual test (Remark 3)	1. Phthalate	<input checked="" type="checkbox"/>	10g total or 10g each	Amber Glass, washed with nitric acid	Fill to full bottle without any air gap and store at 6°C	
	2. Chlorobenzenes, Chlorotoluene & PAHs	<input checked="" type="checkbox"/>				
	3. SCCPs	<input checked="" type="checkbox"/>				
	4. APS	<input checked="" type="checkbox"/>				
5. APEOs	<input checked="" type="checkbox"/>	20 g				
6. Chlorophenols & Cresols	<input checked="" type="checkbox"/>	20 g				
7. Flame retardant	<input checked="" type="checkbox"/>	10 g				
8. Dyes	<input checked="" type="checkbox"/>	10 g				
9. Glycols	<input checked="" type="checkbox"/>	100 g				
10. *Pesticides	<input checked="" type="checkbox"/>	20g				
11. Banned Azodyes	<input checked="" type="checkbox"/>	20 g				
12. *Free primary aromatic amines	<input checked="" type="checkbox"/>	10 g				
13. Organotin Compounds	<input checked="" type="checkbox"/>	10 g				
14. VOC & Halogenated Solvents	<input checked="" type="checkbox"/>	10 g	Amber Glass, wash with pesticide grade acetone			Fill to full container without any air gap and add and store at 6°C
15. PFCs	<input checked="" type="checkbox"/>	10 g	PE, wash with pesticide grade acetone			Fill to full bottle without any air gap and store at 6°C

Tests (Conventional Parameters)	Test required (v)	Total of sample size	Type of container	Preservation method
16. Heavy Metals except Cr(VI)	<input checked="" type="checkbox"/>	0.2 g	PE, wash with nitric acid	Fill to full bottle without any air gap and store at 6°C
17. Cr(VI)	<input checked="" type="checkbox"/>	2.5 g	Amber Glass, wash with pesticide grade acetone	Fill to full container without any air gap and add and store at 6°C
18. Adsorbable organically bound halogens (AOX)	<input checked="" type="checkbox"/>	1 g		
19. Extractable organohalides (EOX)	<input checked="" type="checkbox"/>	20 g		
20. Total organic carbon (TOC)	<input checked="" type="checkbox"/>	20 g		
21. Cyanide	<input checked="" type="checkbox"/>	50 g		
22. Others	<input checked="" type="checkbox"/>			Fill to full container without any air gap and adjust pH 12 with 50% NaOH and store at 6°C
Observation/ Remark:				

***Remarks:**

- Individual sampling can be performed upon request
- Scope of ZDHC guideline Parameter 1, 2, 4-9, 11, 13-17, 21
Scope of synthetic leather Industry: Parameter 1, 2, 4-9, 11, 13-17, 21
Scope of MMCF: Parameter 16, 18-20
Free primary aromatic amine and pesticides are not in the scope of ZDHC Guideline, they are tested upon request.
- Refer to CPSD-AN-G00019-STIP01, locations with those CPSD test capability inside TCD matrix can perform the combined test.

APPENDIX D – Limitation Value of Legal Requirements

PART-I

THE SINDH GOVT. GAZETTE EXT. JAN. 28, 2016

24

SINDH ENVIRONMENTAL QUALITY STANDARDS FOR MUNICIPAL AND LIQUID INDUSTRIAL EFFLUENTS (mg/l, UNLESS OTHERWISE DEFINED)

S. No.	Parameter	Into Inland Waters	Standards Into Sewage Treatment ⁽⁵⁾	Into Sea ⁽¹⁾
1	2	3	4	5
1.	Temperature 40 ⁰ C or Temperature Increase *	≤3 ⁰ C	≤3 ⁰ C	≤3 ⁰ C
2.	pH value (H ⁺)	6-9	6-9	6-9
3.	Biochemical Oxygen Demand (BOD) ₅ at 20 ⁰ C ⁽¹¹⁾	80	250	80**
4.	Chemical Oxygen Demand (COD) ⁽¹³⁾	150	400	400
5.	Total Suspended Solids (TSS) ...	200	400	200
6.	Total Dissolved Solids (TDS)	3500	3500	3500
7.	Oil and Grease	10	10	10
8.	Phenolic compounds (as phenol)	0.1	0.3	0.3
9.	Chloride (as Cl ⁻)	1000	1000	SC***
10.	Fluoride (as F ⁻)	10	10	10
11.	Cyanide (as CN ⁻) total	1.0	1.0	1.0
12.	An-ionic detergents (as MBAS) ⁽²⁾	20	20	20
13.	Sulphate (SO ₄ ²⁻)	600	1000	SC***
14.	Sulphide (S ²⁻)	1.0	1.0	1.0
15.	Ammonia (NH ₃)	40	40	40
16.	Pesticides ⁽³⁾	0.15	0.15	0.15
17.	Cadmium ⁽⁴⁾	0.1	0.1	0.1
18.	Chromium (trivalent and hexavalent) ⁽⁴⁾	1.0	1.0	1.0
19.	Copper ⁽⁴⁾	1.0	1.0	1.0
20.	Lead ⁽⁴⁾	0.5	0.5	0.5
21.	Mercury ⁽⁴⁾	0.01	0.01	0.01
22.	Selenium ⁽⁴⁾	0.5	0.5	0.5
23.	Nickel ⁽⁴⁾	1.0	1.0	1.0
24.	Silver ⁽⁴⁾	1.0	1.0	1.0
25.	Total toxic metals	2.0	2.0	2.0
26.	Zinc	5.0	5.0	5.0
27.	Arsenic ⁽⁴⁾	1.0	1.0	1.0
28.	Barium ⁽⁴⁾	1.5	1.5	1.5
29.	Iron	8.0	8.0	8.0
30.	Manganese	1.5	1.5	1.5
31.	Boron ⁽⁴⁾	6.0	6.0	6.0
32.	Chlorine	1.0	1.0	1.0

End