



Test Report: (6823)105-0087

Report Date: April 29, 2023

Factory Company Name: Panorama Washing CO. Ltd.

Factory Address: Shee-127, Kodda-Nandun, Nawzor, Gazipur, Dhaka, 1702, Bangladesh.

| | | | |
|--------------------------------|----------------------------|-----------|-------------------------------|
| Sampling Method & Description: | I001) Untreated wastewater | Composite | Grey color liquid |
| | I002) Effluent | Composite | Colorless / grey color liquid |
| | I003) Sludge | Composite | Grey color wet-solid |
| | I004) Leachate | - | Not tested |
| | I005) Incoming water | - | Not tested |

Discharge Type: **Direct Discharge**

On-site ETP / Pretreatment: Yes Homgenization Tank & Holding Time: Yes; Less than 12 hours

Discharge Destination: City Corporation Drain

Permit Validation Date: /

Conventional, Anions & Heavy Metals Overall Category: Foundational ZDHC MRSL Parameters: Not detected

Sludge Parameters: Meet ZDHC Threshold Value

Sample Pick Up Date: April 13, 2023 Sampler Number: C74D106817480

Test Period: April 13, 2023 to April 29, 2023

Parameter(s) exceeded maximum holding time: Not exceeded

Remark

The results of this report shall not be used for any regulatory compliance purposes.

| | | | |
|--------------------------|--------------------|--|---|
| Type of Process: | Textile | Average total industrial wastewater generated: | Equal or more than 15m³/day |
| Sludge Disposal Pathway: | Disposal Pathway D | | |
| Type of Sludge: | Wet-solid | | |

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BUREAU VERITAS

CONSUMER PRODUCTS SERVICES (BANGLADESH) LTD.

Report approved by:

MR. MD. RASHEDUL HAQUE

DEPUTY SR. MANAGER, RSL OPERATIONS

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Result Summary - ZDHC MRSL Wastewater Parameters

| Test Items | Untreated wastewater | Effluent | Incoming water |
|---|----------------------|----------|----------------|
| 1A) AP and APEOs | ND | NR | NR |
| 1B) Anti-Microbials & Biocides | ND | | NR |
| 1C) Chlorinated Parafins | ND | | NR |
| 1D) Chlorobenzenes and Chlorotoluenes | ND | | NR |
| 1E) Chlorophenols | ND | | NR |
| 1F) DMFa | ND | | NR |
| 1G) Dyes - Carcinogenic or Equivalent Concern | ND | | NR |
| 1H) Dyes - Disperse (Sensitising) | ND | | NR |
| 1I) Dyes - Navy Blue Colourant | ND | | NR |
| 1J) Flame Retardants | ND | | NR |
| 1K) Glycols / Glycol Ethers | ND | | NR |
| 1L) Halogenated Solvents | ND | | NR |
| 1M) Organotin Compounds | ND | | NR |
| 1N) Other / Miscellaneous Chemicals | ND | | NR |
| 1O) PFCs | ND | | NR |
| 1P) Phthalates | ND | | NR |
| 1Q) PAHs | ND | | NR |
| 1R) Restricted Aromatic Amines | ND | | NR |
| 1S) UV Absorbers | ND | | NR |
| 1T) VOC | ND | | NR |



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Result Summary - ZDHC Heavy Metals, Conventional and Anions Wastewater Parameters

| Test Items | Untreated wastewater | Effluent | Incoming water |
|------------------------------|----------------------|-----------------|----------------|
| Antimony | NR | Meet | NR |
| Chromium (VI) | | Meet | NR |
| Barium | | Refer to result | NR |
| Selenium | | Refer to result | NR |
| Tin | | Refer to result | NR |
| Arsenic | | Meet | NR |
| Total Chromium | | Meet | NR |
| Cobalt | | Meet | NR |
| Cadmium | | Meet | NR |
| Copper | | Meet | NR |
| Lead | | Meet | NR |
| Nickel | | Meet | NR |
| Silver | | Meet | NR |
| Zinc | | Meet | NR |
| Mercury | | Meet | NR |
| pH | | Meet | NR |
| Temperature difference | | Meet | |
| E.coli | | Meet | |
| Colour | | Meet | |
| Persistent Foam | | Meet | |
| Wastewater Flowrate | | Refer to result | |
| Ammonium-Nitrogen | | Meet | |
| AOX | | Meet | |
| BOD ₅ | | Meet | |
| COD | | Meet | |
| DO | | Refer to result | |
| Oil & Grease | | Meet | |
| Total Phenols / Phenol Index | | Meet | |
| Total Chlorine | | Refer to result | |
| TDS | | Refer to result | |
| Total Nitrogen | | Meet | |
| Total Phosphorus | | Meet | |
| TSS | | Meet | |
| Chloride | Refer to result | | |
| Cyanide, total | Meet | | |
| Sulfate | Refer to result | | |
| Sulfide | Meet | | |
| Sulfite | Meet | | |



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Result Summary - ZDHC Sludge Parameters

| Test Items | Sludge | Leachate |
|-------------------|-----------------|----------|
| Antimony | ND | NR |
| Arsenic | ND | NR |
| Barium | ND | NR |
| Cadmium | ND | NR |
| Cobalt | ND | NR |
| Copper | Refer to result | NR |
| Lead | Refer to result | NR |
| Nickel | Refer to result | NR |
| Selenium | ND | NR |
| Silver | ND | NR |
| Total Chromium | ND | NR |
| Zinc | Refer to result | NR |
| Chromium (VI) | ND | NR |
| Mercury | ND | NR |
| Cyanide | Refer to result | NR |
| pH | Refer to result | |
| % Solids | Refer to result | |
| Paint Filter Test | Refer to result | |
| Fecal Coliform | Refer to result | |
| AP and APEOs | ND | |
| PAHs | ND | |
| Chlorotoluenes | ND | |

Note / Key:

| | | |
|-----------------|---|--|
| Meet | = | Meet Foundational Limit / Meet Discharge Criteria |
| Not Meet | = | Exceed Foundational Limit / Exceed Discharge Criteria |
| NR | = | Not requested / Not required |
| NA | = | Not applicable |
| D | = | Detected |
| ND | = | Not detected |
| Refer to result | = | Legal parameter(s) and/or parameter(s) requested by factory, please refer to test result |



Test Report: (6823)105-0087

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Test Result - ZDHC MRSL Parameters

| Test Parameters | Results of Test Items | | | | | Requirements [Textile] | | |
|---|-----------------------|----------------|------------------------------|-----------------------------|----------------|------------------------|--------------------------------|----------------------------|
| | I001 (µg/L) | I002 (µg/L) | I003 [#] (mg/kg) | I004 [#] (mg/L) | I005 (µg/L) | Wastewater (µg/L) | Sludge [#] (mg/kg) | Leachate [#] - |
| 1A) AP and APEOs: including all isomers | | | | | | | | |
| NPEO | ND | NR | ND | NR | NR | 5 | 0.4 | - |
| NP, mixed isomers | ND | | ND | | NR | | | |
| OPEO | ND | | ND | | NR | | | |
| OP, mixed isomers | ND | | ND | | NR | | | |
| 1B) Anti-Microbials & Biocides | | | | | | | | |
| o-Phenylphenol (+salts) | ND | NR | NR | NR | NR | 100 | - | - |
| Triclosan | ND | | | | NR | | | |
| Permethrin | ND | | | | NR | | | |
| 1C) Chlorinated Parafins | | | | | | | | |
| MCCPs (C14-C17) | ND | NR | NR | NR | NR | 500 | - | - |
| SCCPs (C10-C13) | ND | | | | NR | | | |
| 1D) Chlorobenzenes and Chlorotoluenes | | | | | | | | |
| 1,2-dichlorobenzene | ND | NR | NR | NR | NR | 0.2 | - | - |
| Other isomers of mono-, di-, tri-, tetra-, penta- and hexa- chlorobenzene | ND | | | | NR | | | |
| Other isomers of mono-, di-, tri-, tetra- and penta- chlorotoluene | ND | | | | ND | | | |
| 1E) Chlorophenols | | | | | | | | |
| 2-chlorophenol | ND | NR | NR | NR | NR | 0.5 | - | - |
| 3-chlorophenol | ND | | | | NR | | | |
| 4-chlorophenol | ND | | | | NR | | | |
| 2,3-dichlorophenol | ND | | | | NR | | | |
| 2,4-dichlorophenol | ND | | | | NR | | | |
| 2,5-dichlorophenol | ND | | | | NR | | | |
| 2,6-dichlorophenol | ND | | | | NR | | | |
| 3,4-dichlorophenol | ND | | | | NR | | | |
| 3,5-dichlorophenol | ND | | | | NR | | | |
| 2,3,4-trichlorophenol | ND | | | | NR | | | |
| 2,3,5-trichlorophenol | ND | | | | NR | | | |
| 2,3,6-trichlorophenol | ND | | | | NR | | | |
| 2,4,5-trichlorophenol | ND | | | | NR | | | |
| 2,4,6-trichlorophenol | ND | | | | NR | | | |
| 3,4,5-trichlorophenol | ND | | | | NR | | | |
| 2,3,5,6-tetrachlorophenol | ND | | | | NR | | | |
| 2,3,4,6-tetrachlorophenol | ND | | | | NR | | | |
| 2,3,4,5-tetrachlorophenol | ND | | | | NR | | | |
| Pentachlorophenol (PCP) | ND | | | | NR | | | |
| 1F) N,N-di-methylformamide (DMFa) | | | | | | | | |
| Dimethyl formamide; | ND | NR | NR | NR | NR | 1000 | - | - |
| N,N-dimethylformamide (DMFa) ^a | | | | | | | | |

a = Report only for mock leather

#Limit refers to the chosen ZDHC sludge disposal pathway in Table 4 in accordance with the ZDHC Wastewater Guidelines.



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Test Result - ZDHC MRSL Parameters (continued)

| Test Parameters | Results of Test Items | | | | | Requirements [Textile] | | |
|--|-----------------------|--------|-------------------|-------------------|--------|------------------------|---------------------|-----------------------|
| | I001 | I002 | I003 [#] | I004 [#] | I005 | Wastewater | Sludge [#] | Leachate [#] |
| | (µg/L) | (µg/L) | (mg/kg) | (mg/L) | (µg/L) | (µg/L) | (mg/kg) | - |
| 1G) Dyes - Carcinogenic or Equivalent Concern | | | | | | | | |
| Basic violet 3 with >0.1% of Michler's Ketone | ND | | | | NR | | | |
| C.I. Acid Red 26 | ND | | | | NR | | | |
| C.I. Acid Violet 49 | ND | | | | NR | | | |
| C.I. Basic Blue 26 (with Michler's Ketone >0/1%) | ND | | | | NR | | | |
| C.I. Basic Green 4 (Malachite Green Chloride) | ND | | | | NR | | | |
| C.I. Basic Green 4 (Malachite Green Oxalate) | ND | | | | NR | | | |
| C.I. Basic Green 4 (Malachite Green) | ND | | | | NR | | | |
| C.I. Basic Red 9 | ND | NR | NR | NR | NR | 500 | - | - |
| C.I. Basic Violet 14 | ND | | | | NR | | | |
| C.I. Direct Black 38 | ND | | | | NR | | | |
| C.I. Direct Blue 6 | ND | | | | NR | | | |
| C.I. Direct Red 28 | ND | | | | NR | | | |
| C.I. Disperse Blue 1 | ND | | | | NR | | | |
| C.I. Disperse Blue 3 | ND | | | | NR | | | |
| Disperse Orange 11 | ND | | | | NR | | | |
| 1H) Dyes - Disperse (Allergenic) | | | | | | | | |
| Disperse Blue 102 | ND | | | | NR | | | |
| Disperse Blue 106 | ND | | | | NR | | | |
| Disperse Blue 124 | ND | | | | NR | | | |
| Disperse Blue 26 | ND | | | | NR | | | |
| Disperse Blue 35 (CAS 12222-75-2) | ND | | | | NR | | | |
| Disperse Blue 35 (CAS 56524-77-7) | ND | | | | NR | | | |
| Disperse Blue 7 | ND | | | | NR | | | |
| Disperse Brown 1 | ND | | | | NR | | | |
| Disperse Orange 1 | ND | | | | NR | | | |
| Disperse Orange 3 | ND | NR | NR | NR | NR | 50 | - | - |
| Disperse Orange 37/59/76 | ND | | | | NR | | | |
| Disperse Red 1 | ND | | | | NR | | | |
| Disperse Red 11 | ND | | | | NR | | | |
| Disperse Red 17 | ND | | | | NR | | | |
| Disperse Yellow 1 | ND | | | | NR | | | |
| Disperse Yellow 3 | ND | | | | NR | | | |
| Disperse Yellow 39 | ND | | | | NR | | | |
| Disperse Yellow 49 | ND | | | | NR | | | |
| Disperse Yellow 9 | ND | | | | NR | | | |
| 1I) Dyes - Navy Blue Colourant | | | | | | | | |
| Component 1: C39H23Cl-CrN7O12S 2Na | ND | NR | NR | NR | NR | 500 | - | - |
| Component 2: C46H-30CrN10O20S2 3Na | ND | | | | NR | | | |

#Limit refers to the chosen ZDHC sludge disposal pathway in Table 4 in accordance with the ZDHC Wastewater Guidelines.



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Test Result - ZDHC MRSL Parameters (continued)

| Test Parameters | Results of Test Items | | | | | Requirements [Textile] | | |
|--|-----------------------|----------------|------------------------------|-----------------------------|----------------|------------------------|--------------------------------|----------------------------|
| | I001 (µg/L) | I002 (µg/L) | I003 [#] (mg/kg) | I004 [#] (mg/L) | I005 (µg/L) | Wastewater (µg/L) | Sludge [#] (mg/kg) | Leachate [#] - |
| 1J) Flame Retardants | | | | | | | | |
| 2,2-bis(bromomethyl)-1,3-propanediol (BBMP) | ND | | | | NR | | | |
| Dis(2,3-dibromopropyl) phosphate (BIS) | ND | | | | NR | | | |
| Decabromophenyl ether (DecaBDE) | ND | | | | NR | | | |
| Hexabromocyclodecane (HBCDD) | ND | | | | NR | | | |
| Octabromodiphenyl ether (OctaBDE) | ND | | | | NR | | | |
| Pentabromodiphenyl ether (PentaBDE) | ND | | | | NR | | | |
| Polybromobiphenyls (PBB) | ND | | | | NR | | | |
| Tetrabromobisphenol A (TBBPA) | ND | | | | NR | | | |
| Tris-(2-chloro-1-methylethyl) phosphate (TCPP) | ND | | | | NR | | | |
| Tris(1-aziridinyl)phosphone oxide (TEPA) | ND | | | | NR | | | |
| Tris(1,3-dichloro-isopropyl) phosphate (TDCP) | ND | | | | NR | | | |
| Tris(2-chloroethyl) phosphate (TCEP) | ND | | | | NR | | | |
| Tris(2,3-dibromopropyl) phosphate (TRIS) | ND | | | | NR | 25 | | |
| Decabromobiphenyl (DecaBB) | ND | | | | NR | | | |
| Dibromobiphenyls (DiBB) | ND | NR | NR | NR | NR | | | |
| Octabromobiphenyls (OctaBB) | ND | | | | NR | | | |
| Dibromopropylether | ND | | | | NR | | | |
| Heptabromodiphenyl ether (HeptaBDE) | ND | | | | NR | | | |
| Hexabromodiphenyl ether (HexaBDE) | ND | | | | NR | | | |
| Monobromobiphenyls (MonoBB) | ND | | | | NR | | | |
| Monobromodiphenylethers (MonoBDEs) | ND | | | | NR | | | |
| Nonabromobiphenyls (NonaBB) | ND | | | | NR | | | |
| Nonabromodiphenyl ether (NonaBDE) | ND | | | | NR | | | |
| Tetrabromodiphenyl ether (TetraBDE) | ND | | | | NR | | | |
| Tribromophenylethers (TriBDEs) | ND | | | | NR | | | |
| Boric acid ^b | ND | | | | NR | | | |
| Diboron trioxide ^b | ND | | | | NR | | | |
| Disodium octaborate ^b | ND | | | | NR | 100 | | |
| Disodium tetraborate anhydrous ^b | ND | | | | NR | | | |
| Tetraboron disodium heptaoxide, hydrate ^b | ND | | | | NR | | | |
| 1K) Glycols / Glycol Ethers | | | | | | | | |
| 2-ethoxyethanol | ND | | | | NR | | | |
| 2-ethoxyethyl acetate | ND | | | | NR | | | |
| 2-methoxyethanol | ND | | | | NR | | | |
| 2-methoxyethylacetate | ND | NR | NR | NR | NR | 50 | - | - |
| 2-methoxypropylacetate | ND | | | | NR | | | |
| Bis(2-methoxyethyl)-ether | ND | | | | NR | | | |
| Ethylene glycol dimethyl ether | ND | | | | NR | | | |
| Triethylene glycol dimethyl ether | ND | | | | NR | | | |
| 1L) Halogenated Solvents | | | | | | | | |
| 1,2-dichloroethane | ND | | | | NR | | | |
| Methylene chloride | ND | NR | NR | NR | NR | 1 | - | - |
| Tetrachloroethylene | ND | | | | NR | | | |
| Trichloroethylene | ND | | | | NR | | | |

b = Limit refers to elemental boron, not the salt.

#Limit refers to the chosen ZDHC sludge disposal pathway in Table 4 in accordance with the ZDHC Wastewater Guidelines.



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Test Result - ZDHC MRSL Parameters (continued)

| Test Parameters | Results of Test Items | | | | | Requirements [Textile] | | | | | |
|--|-----------------------|----------------|------------------------------|-----------------------------|----------------|------------------------|--------------------------------|----------------------------|-----|---|---|
| | I001 (µg/L) | I002 (µg/L) | I003 [#] (mg/kg) | I004 [#] (mg/L) | I005 (µg/L) | Wastewater (µg/L) | Sludge [#] (mg/kg) | Leachate [#] - | | | |
| 1M) Organotin Compounds | | | | | | | | | | | |
| Dipropyltin compounds (DPT) | ND | | | | NR | 0.01 | - | - | | | |
| Mono, di-, and tri-butyltin derivatives | ND | | | | NR | | | | | | |
| Mono, di-, and tri-methyltin derivatives | ND | | | | NR | | | | | | |
| Mono, di-, and tri-octyltin derivatives | ND | | | | NR | | | | | | |
| Mono, di-, and tri-phenyltin derivatives | ND | NR | NR | NR | NR | | | | | | |
| Tetrabutyltin compounds (TeBT) | ND | | | | NR | | | | | | |
| Tripropyltin compounds (TPT) | ND | | | | NR | | | | | | |
| Tetraoctyltin compounds (TeOT) | ND | | | | NR | | | | | | |
| Tricyclohexyltin (TCyHT) | ND | | | | NR | | | | | | |
| Tetraethyltin compounds (TeET) | ND | | | | NR | | | | | | |
| 1N) Other / Miscellaneous Chemicals | | | | | | | | | | | |
| AEEA [2-(2-aminoethylamino)ethanol] | ND | | | | NR | | | | 500 | - | - |
| Bisphenol A | ND | | | | NR | 10 | | | | | |
| Thiourea | ND | NR | NR | NR | NR | 50 | | | | | |
| Quinoline | ND | | | | NR | | | | | | |
| Borate, zinc salt ^c | ND | | | | NR | 100 | | | | | |
| Silica (used in sand blasting) ^d | NR | | | | NR | - | | | | | |
| 1O) Perfluorinated and Polyfluorinated Chemicals (PFCs) | | | | | | | | | | | |
| Perfluorooctane sulfonate (PFOS) and related substances, Perfluorooctanoic acid (PFOA) | ND | NR | NR | NR | NR | 0.01 | - | - | | | |
| Perfluorooctanoic acid (PFOA) related substances | ND | | | | NR | 1 | | | | | |
| 1P) Phthalates - including all other esters of ortho-phthalic acid | | | | | | | | | | | |
| 1,2-benzenedicarboxylic acid, di-C6-8 branched and linear alkyl esters, C7-rich (DIHP) | ND | | | | NR | 10 | - | - | | | |
| 1,2-benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters (DHNUF) | ND | | | | NR | | | | | | |
| Bis(2-methoxyethyl)phthalate (DMEP) | ND | | | | NR | | | | | | |
| Butyl benzyl phthalate (BBP) | ND | | | | NR | | | | | | |
| Di-cyclohexyl phthalate (DCHP) | ND | | | | NR | | | | | | |
| Di-iso-decyl phthalate (DIDP) | ND | | | | NR | | | | | | |
| Di-iso-octyl phthalate (DIOP) | ND | | | | NR | | | | | | |
| Di-iso-butyl phthalate (DIBP) | ND | NR | NR | NR | NR | | | | | | |
| Di-iso-nonyl phthalate (DINP) | ND | | | | NR | | | | | | |
| Di-n-hexyl phthalate (DnHP) | ND | | | | NR | | | | | | |
| Di-n-octyl phthalate (DNOP) | ND | | | | NR | | | | | | |
| Di-n-pentylphthalates | ND | | | | NR | | | | | | |
| Di-n-propyl phthalate (DPRP) | ND | | | | NR | | | | | | |
| Di(ethylhexyl) phthalate (DEHP) | ND | | | | NR | | | | | | |
| Dibutyl phthalate (DBP) | ND | | | | NR | | | | | | |
| Diethyl phthalate (DEP) | ND | | | | NR | | | | | | |
| Diisopentylphthalates | ND | | | | NR | | | | | | |
| Dinonyl phthalate (DNP) | ND | | | | NR | | | | | | |

c = Limit refers to elemental boron and/or zinc, not the salt.

d = Not a ZDHC wastewater parameter, and not required to test this parameter as this is related to sand blasting

#Limit refers to the chosen ZDHC sludge disposal pathway in Table 4 in accordance with the ZDHC Wastewater Guidelines.



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Test Result - ZDHC MRSL Parameters (continued)

| Test Parameters | Results of Test Items | | | | | Requirements [Textile] | | |
|--|-----------------------|----------------|------------------------------|-----------------------------|----------------|------------------------|--------------------------------|----------------------------|
| | I001 (µg/L) | I002 (µg/L) | I003 [#] (mg/kg) | I004 [#] (mg/L) | I005 (µg/L) | Wastewater (µg/L) | Sludge [#] (mg/kg) | Leachate [#] - |
| 1Q) Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| Acenaphthene | ND | | ND | | NR | | | |
| Acenaphthylene | ND | | ND | | NR | | | |
| Anthracene | ND | | ND | | NR | | | |
| Benzo[a]anthracene | ND | | ND | | NR | | | |
| Benzo[a]pyrene (BaP) | ND | | ND | | NR | | | |
| Benzo[b]fluoranthene | ND | | ND | | NR | | | |
| Benzo[e]pyrene | ND | | ND | | NR | | | |
| Benzo[ghi]perylene | ND | | ND | | NR | | | |
| Benzo[j]fluoranthene | ND | NR | ND | NR | NR | 1 | 0.2 | - |
| Benzo[k]fluoranthene | ND | | ND | | NR | | | |
| Chrysene | ND | | ND | | NR | | | |
| Dibenz[a,h]anthracene | ND | | ND | | NR | | | |
| Fluoranthene | ND | | ND | | NR | | | |
| Fluorene | ND | | ND | | NR | | | |
| Indeno[1,2,3-cd]pyrene | ND | | ND | | NR | | | |
| Naphthalene | ND | | ND | | NR | | | |
| Phenanthrene | ND | | ND | | NR | | | |
| Pyrene | ND | | ND | | NR | | | |
| 1R) Restricted Aromatic Amines (Cleavable from Azo-colourants) | | | | | | | | |
| 2-naphthylamine | ND | | | | NR | | | |
| 2-naphthylammoniumacetate | ND | | | | NR | | | |
| 2,4-xylidine | ND | | | | NR | | | |
| 2,4,5-trimethylaniline | ND | | | | NR | | | |
| 2,4,5-trimethylaniline hydrochloride | ND | | | | NR | | | |
| 2,6-xylidine | ND | | | | NR | | | |
| 3,3'-dichlorobenzidine | ND | | | | NR | | | |
| 3,3-dimethoxybenzidine | ND | | | | NR | | | |
| 3,3-dimethylbenzidine | ND | | | | NR | | | |
| 4-aminoazobenzene | ND | | | | NR | | | |
| 4-aminodiphenyl | ND | | | | NR | | | |
| 4-chloro-o-toluidine | ND | | | | NR | | | |
| 4-chloro-o-toluidinium chloride | ND | | | | NR | | | |
| 4-chloroaniline | ND | | | | NR | | | |
| 4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate | ND | NR | NR | NR | NR | 0.1 | - | - |
| 4-methoxy-m-phenylenediamine | ND | | | | NR | | | |
| 4-methyl-m-phenylenediamine | ND | | | | NR | | | |
| 4,4-methylene-bis-(2-chloro-aniline) | ND | | | | NR | | | |
| 4,4-methylenedi-o-toluidine | ND | | | | NR | | | |
| 4,4-methylenedianiline | ND | | | | NR | | | |
| 4,4-oxydianiline | ND | | | | NR | | | |
| 4,4-thiodianiline | ND | | | | NR | | | |
| 5-nitro-o-toluidine | ND | | | | NR | | | |
| 6-methoxy-m-toluidine | ND | | | | NR | | | |
| Benzidine | ND | | | | NR | | | |
| o-aminoazotoluene | ND | | | | NR | | | |
| o-anisidine | ND | | | | NR | | | |
| o-toluidine | ND | | | | NR | | | |

#Limit refers to the chosen ZDHC sludge disposal pathway in Table 4 in accordance with the ZDHC Wastewater Guidelines.



Test Report: (6823)105-0087

Report Date: April 29, 2023

Test Result - ZDHC MRSL Parameters (continued)

| Test Parameters | Results of Test Items | | | | | Requirements [Textile] | | |
|---|-----------------------|----------------|------------------------------|-----------------------------|----------------|------------------------|--------------------------------|----------------------------|
| | I001 (µg/L) | I002 (µg/L) | I003 [#] (mg/kg) | I004 [#] (mg/L) | I005 (µg/L) | Wastewater (µg/L) | Sludge [#] (mg/kg) | Leachate [#] - |
| 1S) UV Absorbers | | | | | | | | |
| 2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl) phenol (UV-350) | ND | NR | NR | NR | NR | 100 | - | - |
| 2-(2H-benzotriazol-2-yl)-4,6- ditertpentylphenol (UV-328) | ND | | | | NR | | | |
| 2-benzotriazol-2-yl-4,6-di-tert- butylphenol (UV-320) | ND | | | | NR | | | |
| 2,4-Di-tert-butyl-6-(5- chlorobenzotriazole-2-yl) phenol (UV-327) | ND | | | | NR | | | |
| 1T) Volatile Organic Compounds (VOC) | | | | | | | | |
| Benzene | ND | NR | NR | NR | NR | 1 | - | - |
| m-cresol | ND | | | | NR | | | |
| o-cresol | ND | | | | NR | | | |
| p-cresol | ND | | | | NR | | | |
| Xylene | ND | | | | NR | | | |
| Toluene ^a | ND | | | | NR | | | |

a = Report only for mock leather

#Limit refers to the chosen ZDHC sludge disposal pathway in Table 4 in accordance with the ZDHC Wastewater Guidelines.



Test Report: (6823)105-0087

Report Date: April 29, 2023

Test Result - ZDHC Heavy Metals Parameters

| Test Parameters | Unit | | | Results of Test Items | | | | | Requirements [Textile] | | | | |
|--------------------------|------------|--------|----------|-----------------------|------|-------|-------|------|------------------------|-------------|--------------|-----------------|-------------------------|
| | Wastewater | Sludge | Leachate | I001 | I002 | I003# | I004# | I005 | Wastewater | | | Sludge | |
| | | | | | | | | | Foundational | Progressive | Aspirational | Discharge Limit | Sludge Threshold Values |
| ZDHC Heavy Metals | | | | | | | | | | | | | |
| Antimony | mg/L | mg/kg | mg/L | NR | ND | ND | NR | NR | 0.1 | 0.05 | 0.01 | - | 12 |
| Chromium (VI) | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | 0.05 | 0.005 | 0.001 | - | 50 |
| Barium | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | Sample & Report | | | - | 700 |
| Selenium | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | Sample & Report | | | - | 10 |
| Tin | mg/L | - | - | | ND | NR | NR | NR | Sample & Report | | | - | - |
| Arsenic | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | 0.05 | 0.01 | 0.005 | - | 10 |
| Total Chromium | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | 0.2 | 0.1 | 0.05 | - | 100 |
| Cobalt | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | 0.05 | 0.02 | 0.01 | - | 1600 |
| Cadmium | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | 0.1 | 0.05 | 0.01 | - | 3 |
| Copper | mg/L | mg/kg | mg/L | | ND | 53 | NR | NR | 1 | 0.5 | 0.25 | - | 200 |
| Lead | mg/L | mg/kg | mg/L | | ND | 8 | NR | NR | 0.1 | 0.05 | 0.01 | - | 10 |
| Nickel | mg/L | mg/kg | mg/L | | ND | 30.5 | NR | NR | 0.2 | 0.1 | 0.05 | - | 70 |
| Silver | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | 0.1 | 0.05 | 0.005 | - | 100 |
| Zinc | mg/L | mg/kg | mg/L | | ND | 851 | NR | NR | 5 | 1 | 0.5 | - | 1000 |
| Mercury | mg/L | mg/kg | mg/L | | ND | ND | NR | NR | 0.01 | 0.005 | 0.001 | - | 1 |

#Limit refers to the chosen ZDHC sludge disposal pathway in Table 4 in accordance with the ZDHC Wastewater Guidelines.



Report Date: April 29, 2023

Test Result - ZDHC Conventional and Anions Parameters

| Test Parameters | Unit | | | Results of Test Items | | | | | Requirements [Textile] | | | | | |
|------------------------------|---------------------|--------|----------|-----------------------|--------|--------|-------|------|------------------------|----------------------------------|--------------|-----------------|-------------------------|--|
| | Wastewater | Sludge | Leachate | I001 | I002 | I003# | I004# | I005 | Wastewater | | | Sludge | | |
| | | | | | | | | | Foundational | Progressive | Aspirational | Discharge Limit | Sludge Threshold Values | |
| ZDHC Conventional | | | | | | | | | | | | | | |
| pH | pH | | | | 7.1 | 7.8 | | | | 6 - 9 | | | - | |
| Tempature difference | Δ °C | | | | 1.1 | | | | | 15 | 10 | 5 | - | |
| E.coli | MPN/100-ml | | | | <1.8 | | | | | 126 | | | - | |
| Colour (436 nm) | m ⁻¹ | | | | ND | | | | | 7 | 5 | 2 | - | |
| Colour (525 nm) | m ⁻¹ | | | | ND | | | | | 5 | 3 | 1 | - | |
| Colour (620 nm) | m ⁻¹ | | | | ND | | | | | 3 | 2 | 1 | - | |
| Persistent Foam | - | | | | Absent | | | | | No indication of Persistent Foam | | | - | |
| Wastewater Flowrate | m ³ /day | | | | 332.53 | | | | | | | | - | |
| Ammonium-Nitrogen | mg/L | | | | ND | | | | | 10 | 1 | 0.5 | - | |
| AOX | mg/L | | | | 0.84 | | | | | 3 | 0.5 | 0.1 | - | |
| BOD ₅ | mg/L | | | | 12 | NR | | | | 30 | 15 | 8 | - | |
| COD | mg/L | | | | 41 | | | | | 150 | 80 | 40 | - | |
| DO | mg/L | | | NR | 6.87 | | NR | NR | | Sample & Report | | | - | |
| Oil & Grease | mg/L | | | | 1.4 | | | | | 10 | 2 | 0.5 | - | |
| Total Phenols / Phenol Index | mg/L | | | | 0.001 | | | | | 0.5 | 0.01 | 0.001 | - | |
| Total Chlorine | mg/L | | | | 0.21 | | | | | Sample & Report | | | - | |
| TDS | mg/L | | | | 326 | | | | | | | | - | |
| Total Nitrogen | mg/L | | | | 16.97 | | | | | 20 | 10 | 5 | - | |
| Total Phosphorus | mg/L | | | | 1 | | | | | 3 | 0.5 | 0.1 | - | |
| TSS | mg/L | | | | 7 | | | | | 50 | 15 | 5 | - | |
| % Solids | - | % | | | | 38.21 | | | | | | | - | |
| Paint Filter Test | - | - | | | NR | Pass | | | | | | | - | |
| Fecal Coliform | - | MPN/g | | | | 11,000 | | | | | | | - | |
| ZDHC Anions | | | | | | | | | | | | | | |
| Chloride | mg/L | - | - | | 34.99 | NR | | | | Sample & Report | | | - | |
| Cyanide, total | mg/L | mg/kg | - | | ND | ND | | | | 0.2 | 0.1 | 0.05 | - | |
| Sulfate | mg/L | | | NR | 12.92 | | NR | NR | | Sample & Report | | | - | |
| Sulfide | mg/L | - | - | | 0.11 | NR | | | | 0.5 | 0.05 | 0.01 | - | |
| Sulfite | mg/L | | | | 1 | | | | | 2 | 0.5 | 0.2 | - | |

#Limit refers to the chosen ZDHC sludge disposal pathway in Table 4 in accordance with the ZDHC Wastewater Guidelines.



Test Report: (6823)105-0087

Report Date: April 29, 2023

Appendix A - Discharge limit according to regulation: The Environment Conservation Rules, 1997. (Inland Surface Water. 4)

| Sl No. | Test Parameters | Type | unit | Limitation Value of Legal Requirements |
|--------|----------------------------------|--------------|-----------------|--|
| 1 | Temperature | Conventional | °C | 40 |
| 2 | TSS | Conventional | mg/L | 150 |
| 3 | COD | Conventional | mg/L | 200 |
| 4 | Total-N | Conventional | mg/L | NA |
| 5 | pH | Conventional | Range | 6-9 |
| 6 | Colour [m-1] (436nm; 525; 620nm) | Conventional | m ⁻¹ | NA |
| 7 | BOD5 | Conventional | mg/L | 50 |
| 8 | Ammonium-N | Conventional | mg/L | 50 |
| 9 | Total Phosphorus | Conventional | mg/L | 8 |
| 10 | AOX | Conventional | mg/L | NA |
| 11 | Oil and Grease | Conventional | mg/L | 10 |
| 12 | Phenol / Phenol Index | Conventional | mg/L | 1 |
| 13 | TDS | Conventional | mg/L | 2100 |
| 14 | Chloride | Conventional | mg/L | 600 |
| 15 | Persistent Foam | Conventional | -- | NA |
| 16 | Cyanide | Conventional | mg/L | 0.1 |
| 17 | DO(Dissolved Oxygen) | Conventional | mg/L | 4.5-8 |
| 18 | Sulfide | Conventional | mg/L | 1 |
| 19 | Total Dissolved Solids | Conventional | mg/L | 2100 |
| 20 | Electrical Conductivity | Conventional | µmhos/cm | 1200 |
| 21 | Fluoride | Conventional | mg/L | 2 |
| 22 | Sulfite | Conventional | mg/L | NA |
| 23 | Antimony | Metals | mg/L | NA |
| 24 | Chromium, total | Metals | mg/L | 0.5 |
| 25 | Cobalt | Metals | mg/L | NA |
| 26 | Copper | Metals | mg/L | 0.5 |
| 27 | Boron | Metals | mg/L | 2 |
| 28 | Nickel | Metals | mg/L | 1 |
| 29 | Silver | Metals | mg/L | NA |
| 30 | Zinc | Metals | mg/L | 5 |
| 31 | Arsenic | Metals | mg/L | 0.2 |
| 32 | Cadmium | Metals | mg/L | 0.5 |
| 33 | Chromium (VI) | Metals | mg/L | 0.1 |
| 34 | Lead | Metals | mg/L | 0.1 |
| 35 | Mercury | Metals | mg/L | 0.01 |
| 36 | Iron | Metals | mg/L | 2 |
| 37 | Selenium | Metals | mg/L | 0.05 |
| 38 | Manganese | Metals | mg/L | 5 |

NA=Not Applicable



Test Report: (6823)105-0087

Report Date: April 29, 2023

Appendix B - Sample Photos

I001) Sampling point

N 24° 0' 48.633"; E 90° 23' 4.563"



I001) Sampling location surrounding

N 24° 0' 48.633"; E 90° 23' 4.563"



I001) Labelled sample bottles



I001) Sample for phthalate test



I001) Sample packaging



I002) Sampling point

N 24° 0' 48.633"; E 90° 23' 4.563"



I002) Sampling location surrounding

N 24° 0' 48.633"; E 90° 23' 4.563"



I002) Labelled sample bottles



I002) pH measurement



I002) Sample packaging





Test Report: (6823)105-0087

Report Date: April 29, 2023

Appendix B - Sample Photos (continued)

I003) Sampling point

N 24° 0' 48.633"; E 90° 23' 4.563"



I003) Sampling location surrounding

N 24° 0' 48.633"; E 90° 23' 4.563"



I003) Labelled sample bottles



I003) Sample packaging





Test Report: (6823)105-0087
 Report Date: April 29, 2023

Appendix C - On-site Field Data Record Sheet

| | | |
|---|--|---|
| | FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING) | CPSPD-AN-00813-DATA 04 Issue Date: _____ Version No.: 18 Business Line: Analytical |
| (6823) 105-0087 | | |
| General Data | | |
| Laboratory Sample Number: | | |
| Client Name: | | |
| Field Contact Person: | Md. Minul Islam Phone No: 01789678366 | |
| Project (Facility Name and Address): | Panorama Washing Co. Ltd. Shek-127, Kobra-nandun, Newroz Gazi, Gazi Sadon, Gazi Sadon | |
| Sample Identification: | Zero discharge with sampling plan | |
| Sample Type: | <input checked="" type="checkbox"/> Composite Sample / Grab sample (Please delete as appropriate) | |
| Discharge mode: | <input checked="" type="checkbox"/> Direct discharge to environment (Specify destination: River, Sea, Stream...) OR indirect discharge to sewage treatment plant | |
| Date of collection: | 13.04.23 | |
| Factory Type: | Dyeing / Printing / Washing / Finishing / Others (please specify): _____ | |
| *Note: it would be selected more than one | | |
| Sampling Collection Information | | |
| Sampling Location / Description: | ETP - Inlet | |
| Sampling Device Description/ Owner: | | |
| Sampling mode: | Autosampler/ Manual <input checked="" type="checkbox"/> | |
| Sampler Information | | |
| Sampler Name/ Email: | Asfakar Rehanon / asfakar.41@gmail.com | |
| Sampler ZDHC Accredited no.: | C79D106817480 | |
| ZDHC Composite Sample Code: | | |

| | | | | | |
|---|--|-----------------|-------------|------------------------------|----|
| Field Data for Wastewater | | | | | |
| Arrival Time: | 10.45 | Departure Time: | 17.30 | | |
| Field Parameters: | pH: 7.2 | Temp: 28.0 °C | Color: Grey | Flow rate: 10.5 (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: | 18 | 18 | 18 | 18 | 18 |
| ZDHC Wastewater Flow Device Dimensions | | | | | |
| Measurement (cm) | Meter | Pipe (D) | Flume (U) | Weir (V) | |
| Diameter | NA | | | | |
| Depth | NA | NA | NA | | |

| | | | | | | | | |
|--|---------------------------------------|--------------|---|--------|--------|--------|--------|--------------------------------|
| ZDHC Wastewater Sampling Field Testing QA/QC | | | | | | | | |
| Parameter: | Laboratory control sample (LCS) Known | LCS Measured | Accuracy % | | | | | |
| pH | | | | | | | | |
| Total Chlorine | | | | | | | | |
| ZDHC Wastewater Sample Collection Field Test Measurements | | | | | | | | |
| Sampling Time (Hours) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | Average (Report with lab data) |
| Recording time | ID | | | | | | | |
| | Time | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 |
| Temp (°C): | Wastewater Discharge | 28.0 | 28.2 | 27.2 | 27.0 | 27.0 | 27.3 | 28.3 |
| | Receiving Water | | | | | | | |
| pH: | | 7.2 | 7.1 | 7.2 | 7.2 | 7.2 | 7.1 | 7.2 |
| Dissolved Oxygen (mg/L): | | | | | | | | |
| Total Chlorine (mg/L): | | | | | | | | |
| Persistent Foam (Yes/No): | | | | | | | | |
| Wastewater flow meter (L/min): | | 10.5 | 11.2 | 10.5 | 10.8 | 10.9 | 10.2 | 10.4 |
| Alternate measured flow | Depth (cm) | | | | | | | |
| | Velocity (cm/sec) | | | | | | | |
| Color (visual estimation): | | Grey | Grey | Grey | Grey | Grey | Grey | Grey |
| Volume collected, mL | | 193x18 | 193x18 | 193x18 | 193x18 | 193x18 | 193x18 | 193x18 |
| Total volume collected | | 18612 | Remark: Total volume collected must be greater than total of sample size required | | | | | |



Test Report: (6823)105-0087

Report Date: April 29, 2023

Appendix C - On-site Field Data Record Sheet (continued)

| | | |
|--|---|--|
| | FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING) | CPSD-AN-00613-DATA 04 Issue Date: _____ Version No.: 18 Business Line: Analytical |
|--|---|--|

| Analysis Required and Preservation Method | | | | | | |
|---|--|----------------------|---|---|---------------------|--|
| Tests (ZDHC MRSL Parameters) | Test required (v) | Total of sample size | Type of container | Preservation method (Store sample at 2-8°C) | | |
| Combined test or Individual test (Remark 4) | 1. Phthalate | ✓ | 1000 mL total or 1000 mL each | Amber Glass, washed with nitric acid. | Without adding acid | |
| | 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 | X | 10 mL | | | | |
| 12. Banned Azodyes | ✓ | 2000 mL | | | | |
| 13. *Free primary aromatic amines | X | 500 mL | | | | |
| 14. Organotin Compounds | ✓ | 500 mL | | | | |
| 15. UV absorbers | ✓ | 100 | | | | |
| 16. BPA | ✓ | 2 | | | | |
| 17. Preservatives | ✓ | 52 | | | | |
| 18. VOC & Halogenated Solvents (Remark 6) | ✓ | 10 mL | PE, washed with pesticide grade Acetone | | | Fill to full container without air gap; acidity to pH 2 with HCl |
| 19. PFCs (Remark 6) | ✓ | 2 mL | PE, washed with pesticide grade Acetone | | | Without adding acid |

| Tests (Conventional Parameters) | Test required (v) | Total of sample size | Type of container | Preservation method (Store sample at 2-8°C) |
|--|----------------------------------|-------------------------------|--|--|
| Combined test or Individual test (Remark 4) | 20. Total suspended solids (TSS) | 2000 mL total or 2000 mL each | Amber Glass, washed with nitric acid. | Without adding acid |
| | 21. Total dissolved solids (TDS) | 2000 mL each | | |
| 22. 5-day Biochemical Oxygen Demand (BOD5) | | 1000 mL | PE, washed with nitric acid | Acidity to pH 2 with HNO ₃ |
| 23. Colour | | 100 mL | | |
| 24. Heavy Metals except Cr(VI) & Total-P (Remark 6) | | 9 mL | Amber Glass, washed with pesticide grade acetone | Adjust pH 12 with 50% NaOH, add 0.05 ml of 10% Na ₂ S ₂ O ₅ |
| 25. Cyanide | | 500 mL | | |
| 28. Cr(VI) | | 95 mL | Amber Glass, washed with nitric acid | 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 |
| 27. Chemical oxygen demand (COD) | | 150 mL | | |
| 28. Phenols | | 500 mL | | |
| 29. Oil and Grease & Total Hydrocarbon | | 1000 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 |
| 30. *Formaldehyde | | 25 mL | | |
| 31. Sulfide (Remark 5) | | 50 mL | PE, clean, sterile, non-reactive | Add 0.1 ml of 10% Na ₂ S ₂ O ₃ ; keep in dark |
| 32. E coli (Remark 6) | | 125 mL | | |
| 33. Sulfite | | 100 mL | Amber Glass, washed with pesticide grade acetone | Add 1mL of 2.5% EDTA |
| 34. Total-N | | 100 mL | | |
| 35. Ammonium-N | | 500 mL | Amber Glass, washed with nitric acid. | Acidity to pH 2 with H ₂ SO ₄ |
| 36. Adsorbable organically bound halogens (AOX) | | 100 mL | | |
| 37. Acute aquatic toxicity: Luminus Bacteria; Fish Egg; Daphne; Algae; | | 1000 mL | | |
| 38. Sulphate | | 100 mL | PE, washed with pesticide grade Acetone | Without adding acid |



Test Report: (6823)105-0087

Report Date: April 29, 2023

Appendix C - On-site Field Data Record Sheet (continued)

| | | | |
|---|--|---|--------|
| FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING) | | CPSD-AN-00613-DATA 04 Issue Date: _____ Version No.: 18 Business Line: Analytical | |
| | | 39. Chloride | 100 mL |
| 40. Others: | | | |
| Observation/ Remark: | | | |

- *Remarks:**
- Individual sampling can be performed upon request
 - The minimum sampling time for 2019 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 1-9, 12, 14-29, 31-36, 38, 39
 Scope of synthetic leather industry: Parameter 1-9, 12, 14-24, 26-29, 31, 32, 34, 35, 38, 39
 Scope of MMCF: Parameter 5, 18, 20, 22-24, 25-29, 31, 34-37
 Free primary aromatic amine, pesticides, nitrosamine and formaldehyde are not in the scope of ZDHC Guideline, they are tested upon request
 - Refer to CPSD-AN-000019-ST/PO1, 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: Asif aur Rahman Date: 13.09.23
 Full name: _____

Continued 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: Md. Minul Islam Date: 13/4/23
 Full Name: _____



Test Report: (6823)105-0087

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Appendix C - On-site Field Data Record Sheet (continued)

| | | |
|--|---|--|
| | FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING) | CPSD-AN-00613-DATA 04 Issue Date: Version No.: 18 Business Line: Analytical |
|--|---|--|

General Data

Laboratory Sample Number: (6823)105-0087

Client Name: _____

Field Contact Person: M.A. Mizan Islam Phone No: 01789678366

Project (Facility Name and Address): Panorama Washing Co. Ltd. Shee-127 Kosh-nandun New zone

Sample Identification: Zero discharge with sampling plan
Gizibura Sakar - Gizibura

Sample Type: Composite Sample / Grab sample (Please delete as appropriate)

Discharge mode: Direct discharge to environment (Specify destination: River, Sea, Stream...) OR Indirect discharge to sewage treatment plant (city corporation drain)

Date of collection: 13.04.23

Factory Type: Dyeing / Printing / Washing / Finishing / Others (please specify):

*Note: It would be selected more than one

Sampling Collection Information

Sampling Location / Description: ETP - outlet

Sampling Device Description/ Owner: _____

Sampling mode: Autosampler/ Manual

Sampler Information

Sampler Name/ Email: Asifur Rahman / asifur.41@gmail.com

Sampler ZDHC Accredited no.: C79D106817480

ZDHC Composite Sample Code: _____

Field Data for Wastewater

| | | | |
|--|---|----------------------|------------------------|
| Arrival Time: | <u>10.45</u> | Departure Time: | <u>17.30</u> |
| Field Parameters: | pH: <u>7.0</u> | Temp: <u>28.6 °C</u> | Color: <u>2500 PCU</u> |
| Control No. of field equipment: | _____ | | |
| Factory with effluent treatment plant: | <input checked="" type="checkbox"/> Yes | | |
| Sample matrix: | <input type="checkbox"/> Incoming water (if required) | _____ | |
| | <input type="checkbox"/> Wastewater before treatment | _____ | |
| | <input checked="" type="checkbox"/> Wastewater after treatment - water at discharge point | _____ | |
| Sampler container number: | <u>12</u> | <u>12</u> | <u>12</u> |

| ZDHC Wastewater Flow Device Dimensions | | | | |
|--|-------|----------|-----------|----------|
| Measurement (cm) | Meter | Pipe (Ø) | Flume (U) | Wier (V) |
| Diameter | NA | | | |
| Depth | NA | NA | NA | |

ZDHC Wastewater Sampling Field Testing QA/ QC

| Parameter | Laboratory control sample (LCS) Known | LCS Measured | Accuracy % |
|----------------|---------------------------------------|--------------|------------|
| pH | | | |
| Total Chlorine | | | |

ZDHC Wastewater Sample Collection Field Test Measurements

| Recording time | ID | Sampling Time (Hours) | | | | | | Average (Report with lab data) |
|-------------------------------|----------------------|-----------------------|--|---------------|----------------|----------------|----------------|--------------------------------|
| | | 0 | 1 | 2 | 3 | 4 | 5 | |
| Temp (°C) | Wastewater Discharge | <u>28.1</u> | <u>28.2</u> | <u>28.0</u> | <u>28.1</u> | <u>28.3</u> | <u>28.5</u> | <u>28.2</u> |
| | Receiving Water | <u>27.2</u> | <u>27.2</u> | <u>27.2</u> | <u>27.2</u> | <u>27.2</u> | <u>27.2</u> | <u>27.2</u> |
| pH | | <u>7.0</u> | <u>7.1</u> | <u>7.0</u> | <u>7.1</u> | <u>7.0</u> | <u>7.1</u> | <u>7.1</u> |
| Dissolved Oxygen (mg/L) | | <u>6.85</u> | <u>6.90</u> | <u>6.80</u> | <u>6.90</u> | <u>6.85</u> | <u>6.85</u> | <u>6.95</u> |
| Total Chlorine (mg/L) | | <u>0.2</u> | <u>0.1</u> | <u>0.2</u> | <u>0.3</u> | <u>0.1</u> | <u>0.3</u> | <u>0.2</u> |
| Persistent Foam (Yes/ No) | | <u>NO</u> | <u>NO</u> | <u>NO</u> | <u>NO</u> | <u>NO</u> | <u>NO</u> | <u>NO</u> |
| Wastewater Flow meter (L/min) | | <u>10.2</u> | <u>10.3</u> | <u>10.2</u> | <u>10.3</u> | <u>10.5</u> | <u>10.6</u> | <u>10.9</u> |
| Alternate measured Flow | Depth (cm) | - | - | - | - | - | - | - |
| | Velocity (cm/sec) | - | - | - | - | - | - | - |
| Color (visual estimation) | | <u>2 tanks</u> | <u>grey</u> | <u>grey</u> | <u>2 tanks</u> | <u>2 tanks</u> | <u>2 tanks</u> | <u>2 tanks</u> |
| Volume collected, mL | | <u>143x12</u> | <u>143x12</u> | <u>143x12</u> | <u>143x12</u> | <u>143x12</u> | <u>143x12</u> | <u>143x12</u> |
| Total volume collected | | <u>12x12</u> | Remark: Total volume collected must be greater than total of sample size required. | | | | | |



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Appendix C - On-site Field Data Record Sheet (continued)

| | | |
|--|---|--|
| | FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING) | CPSD-AN-00613-DATA 04 Issue Date: _____ Version No.: 18 Business Line: Analytical |
|--|---|--|

Analysis Required and Preservation Method

| Tests (ZDHC MRSL Parameters) | | Test required (v) | Total of sample size | Type of container | Preservation method (Store sample at 2-8°C) |
|---|--|-------------------------------------|-------------------------------|---|--|
| Combined test or Individual test (Remark 4) | 1. Phthalate | <input checked="" type="checkbox"/> | 1000 mL total or 1000 mL each | Amber Glass, washed with nitric acid. | Without adding acid |
| | 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 | | |
| 13. Free primary aromatic amines | | | 500 mL | | |
| 14. Organotin Compounds | | | 500 mL | | |
| 15. UV absorbers | | | 100 | | |
| 16. BPA | | | 2 | | |
| 17. Preservatives | | | 52 | | |
| 18. VOC & Halogenated Solvents (Remark 6) | | | 10 mL | | Fill to full container without air gap, acidify to pH 2 with HCl |
| 19. PCPs (Remark 6) | | | 2 mL | PE, washed with pesticide grade Acetone | Without adding acid |

| Tests (Conventional Parameters) | | Test required (v) | Total of sample size | Type of container | Preservation method (Store sample at 2-8°C) |
|--|----------------------------------|-------------------------------------|----------------------|--|--|
| Combined test or Individual test (Remark 4) | 20. Total suspended solids (TSS) | <input checked="" type="checkbox"/> | 2000 mL total or | Amber Glass, washed with nitric acid. | Without adding acid |
| | 21. Total dissolved solids (TDS) | <input checked="" type="checkbox"/> | 2000 mL each | | |
| 22. 5-day Biochemical Oxygen Demand (BOD5) | | <input checked="" type="checkbox"/> | 1000 mL | | |
| 23. Colour | | <input checked="" type="checkbox"/> | 100 mL | | |
| 24. Heavy Metals except Cr(VI) & Total-P (Remark 6) | | <input checked="" type="checkbox"/> | 9 mL | PE, washed with nitric acid | Acidify to pH 2 with HNO ₃ |
| 25. Cyanide | | <input checked="" type="checkbox"/> | 500 mL | Amber Glass, washed with pesticide grade acetone | Adjust pH 12 with 50% NaOH, add 0.05 ml of 10% Na ₂ S ₂ O ₃ |
| 26. Cr(VI) | | <input checked="" type="checkbox"/> | 95 mL | | 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 |
| 27. Chemical oxygen demand (COD) | | <input checked="" type="checkbox"/> | 150 mL | Amber Glass, washed with nitric acid | Acidify to pH 2 with H ₂ SO ₄ |
| 28. Phenols | | <input checked="" type="checkbox"/> | 500 mL | | |
| 29. Oil and Grease & Total Hydrocarbon | | <input checked="" type="checkbox"/> | 1000 mL | | |
| 30. Formaldehyde | | <input checked="" type="checkbox"/> | 25 mL | | Fill to full container without air gap; acidify to pH 2 with H ₂ SO ₄ |
| 31. Sulfide (Remark 5) | | <input checked="" type="checkbox"/> | 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 |
| 32. E. coli (Remark 6) | | <input checked="" type="checkbox"/> | 125 mL | PE, clean, sterile, non-reactive | Add 0.1 ml of 10% Na ₂ S ₂ O ₃ keep in dark |
| 33. Sulfite | | <input checked="" type="checkbox"/> | 100 mL | Amber Glass, washed with pesticide grade acetone | Add 1mL of 2.5% EDTA |
| 34. Total-N | | <input checked="" type="checkbox"/> | 100 mL | | |
| 35. Ammonium-N | | <input checked="" type="checkbox"/> | 500 mL | | Acidify to pH 2 with H ₂ SO ₄ |
| 36. Adsorbable organically bound halogens (AOX) | | <input checked="" type="checkbox"/> | 100 mL | | Acidify to pH 2 with HNO ₃ |
| 37. Acute aquatic toxicity: Luminus Bacteria; Fish Egg, Daphne; Algae; | | <input checked="" type="checkbox"/> | 1000 mL | Amber Glass, washed with nitric acid; | |
| 38. Sulphate | | <input checked="" type="checkbox"/> | 100 mL | | Without adding acid |





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Appendix C - On-site Field Data Record Sheet (continued)

| | | | |
|---|--|------------------------------|--|
| FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING) | | CPSD-AN-00613-DATA 04 | |
| | | Issue Date: | |
| 39. Chloride | | 100 mL | |
| 40. Others: | | | |
| Observation/ Remark: | | | |

- *Remarks:**
- Individual sampling can be performed upon request
 - The minimum sampling time for 2019 ZDHC guideline is 6 hours with no more than one hour between discrete samples. Sampling time could be adjusted upon request.
 - Scops of ZDHC guideline: Parameter 1-9, 12, 14-29, 31-36, 38, 39
 Scope of synthetic leather industry: Parameter 1-9, 12, 14-24, 26-29, 31, 32, 34, 35, 38, 39
 Scope of MMCF: Parameter 5, 18, 20, 22-24, 26-29, 31, 34-37
 Free primary aromatic amine, pesticides, nitrosamine and formaldehyde are not in the scope of ZDHC Guidline, they are tested upon request.
 - Refer to CPSD-AN-G00010-STIP01, locations with those CPSD test capability inside TCO 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-00013-MTHD for preparation of field blank for specific parameters.

Recorded by: Asiqur Rahman Date: 13.09.23

Commut from factory

Acknowledgment 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 desintated 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

Signatory of Factory Representative: Md. Minul Islam Date: 13/4/23





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Appendix C - On-site Field Data Record Sheet (continued)

| | | | |
|--|---|--|------------------------------|
| | FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING) | | CPSD-AN-00613-DATA 04 |
| | Issue Date: | | |
| | Version No.: 18 | | |
| | Business Line: Analytical | | |

| Field Data for Sludge | | | | | | |
|---|-------|----------|---|-------|----|---|
| Arrival Time: | 10:40 | | Departure Time: | 17:30 | | |
| Field Parameters | pH: | Temp: °C | Flow rate (volume/time) / sludge flux (weight/time): | | | |
| Control No. of field equipment: | CST-2 | | Cm | | Dm | |
| Sampling Time (Hours) | 0 | 1 | 2 | 3 | 4 | 5 |
| Recording time | IO | | | | | |
| | Time | 13:50 | | | | |
| pH: | | | | | | |
| Temp (°C): | | | | | | |
| Flow rate (volume/time) / sludge flux (weight/time) | | | | | | |
| Volume collected, mL | | 3x150 | | | | |
| Total volume collected | | 3x150 | Remark: Total volume collected must be greater than total of sample size required | | | |

| Analysis Required and Preservation Method | | | | | |
|---|--|----------------------|--------------------------------------|---|---|
| Factory with effluent treatment plant | Yes | | No | | |
| Sample matrix | Sludge in clarifier (sedimentation tank) | | | | |
| Sampler container number | | | | | |
| Recording time | | | | | |
| Tests (MRLS Parameter) | Test required (v) | Total of sample size | Type of container | Preservation method (Store sample at 2-8°C) | |
| Combined test or Individual test (Remark 3) | 1. Phthalate | X | Amber Glass, washed with nitric acid | Add 0.2 mL of 10% Na ₂ S ₂ O ₃ (0.008% WV) | |
| | 2. Chlorobenzenes, Chlorotoluene & PAHs | ✓ | | | |
| | 3. SCCPs | X | | | |
| | 4. APS | ✓ | | | |
| 5. APECs | ✓ | 20 g | | | |
| 6. Flame retardant | | 10 g | | | |
| 7. Dyes | | 10 g | | | |
| 8. Glycols | | 100 g | | | |
| 9. Pesticides | | 20g | | | |
| 10. Banned Azodyes | | 20 g | | | |
| 11. Free primary aromatic amines | | 10 g | | | |
| 12. Chlorophenols & Cresols | | 20 g | | | Acidify to -pH 2 with H ₂ SO ₄ . Add 0.02 mL of 10% Na ₂ S ₂ O ₃ (0.008% WV) |
| 13. Organotin Compounds | | 10 g | | | Fill to full container without any air gap and acid add |
| 14. VOC & Halogenated Solvents (Remark 5) | | 10 g | | | Fill to full bottle without any air gap. Acidify to -pH 2 with HCl |
| 15. PFCs (Remark 5) | | 10 g | | | PE, wash with pesticide grade acetone |

| Tests (Conventional Parameters) | Test required (v) | Total of sample size | Type of container | Preservation method (Store sample at 2-8°C) |
|---|-------------------|----------------------|--|--|
| 16. Heavy Metals except Cr(VI) (Remark 5) | ✓ | 0.2 g | PE, wash with nitric acid | Acidify to -pH 2 with HNO ₃ |
| 17. Cr(VI) | ✓ | 2.5 g | Amber Glass, wash with nitric acid | Fill to full container without any air gap and acid add |
| 18. Adsorbable organically bound halogens (AOX) | | 1 g | | |
| 19. Extractable organohalides (EOX) | | 20 g | | |
| 20. Total organic carbon (TOC) | | 20 g | | |
| 21. Cyanide | ✓ | 50 g | Amber Glass, wash with pesticide grade acetone | Adjust pH to 12-13 with 50% NaOH |
| 22. Faecal Coliform | ✓ | 20 g | PE, clean, sterile, non-reactive | Add 0.1 mL of 10% Na ₂ S ₂ O ₃ , keep in dark |



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Appendix C - On-site Field Data Record Sheet (continued)

| FIELD DATA RECORD ON ZERO DISCHARGE SAMPLE (COMPOSITE / INDIVIDUAL SAMPLING) | | | CPSD-AN-00613-DATA 04 | |
|---|---|------|------------------------------------|----------------------------|
| | | | Issue Date: | |
| | | | Version No.: 18 | |
| | | | Business Line: Analytical | |
| 23. % Solids | ✓ | 20 g | Amber Glass, wash with nitric acid | Acidify to -pH 2 with HNO3 |
| 24. Paint Filter Test | ✓ | 20 g | | |
| 25. Others | 1 | | | |
| Observation/ Remark: | | | | |
| Remarks: | | | | |

- Individual sampling can be performed upon request
- The minimum sampling time for 2019 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, 5, 16-17, 21-24
Scope of synthetic leather industry: Parameter 1-8, 10, 12-17
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 TCO matrix can perform the combined test.
- Refer to CPSD-AN-00613-MTHD for preparation of field blank for specific parameters.

ZDHC Wastewater Sampling - Facility Confirmation

The Wastewater samples have been collected under the facilities' normal production waste and wastewater flow rate. The sampler listed below was on-site and collected the samples.

Facility Name: Panorama Washing Co. Ltd.
 Facility Representative Name: M. Minal Islam
 Facility Representative Signature and stamp:

Sampler's Name: Ashraun Rahman
 Sampler's ZDHC Accreditation: 271D102817286
 Sampler's Signature: [Signature]





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Appendix D - Test methods, reporting limits and CAS numbers

| Test Parameters | Unit | | CAS No. | LOQ | | Test methods |
|--|------------|--------|--|------------|---|---|
| | Wastewater | Sludge | | Wastewater | Sludge | |
| 1A) AP and APEOs: including all isomers | | | | | | |
| Nonylphenol ethoxylates (NPEO) | µg/L | mg/kg | 9016-45-9, 26027-38-3, 37205-87-1, 68412-54-4, 127087-87-0 | 5 | 0.4 | NP/OP: ISO 18857-2 (modified dichloromethane extraction) or ASTM D7065 (GC-MS or LC-MS(-MS)), OPEO/NPEO (n>2): ASTM D7742 ISO 18857-2 |
| Nonylphenol (NP), mixed isomers | | | 104-40-5, 11066-49-2, 25154-52-3, 84852-15-3 | | | |
| Octylphenol ethoxylates (OPEO) | | | 9002-93-1, 9036-19-5, 68987-90-6 | | | |
| Octylphenol (OP), mixed isomers | | | 140-66-9, 1806-26-4, 27193-28-8 | | | |
| 1B) Anti-Microbials & Biocides | | | | | | |
| o-Phenylphenol (+salts) | µg/L | - | 90-43-7 | 100 | - | USEPA 8270E Solvent extraction, derivatisation with KOH, acetic anhydride followed by GC-MS BS EN 12673-1999 |
| Triclosan | | | 3380-34-5 | | | |
| Permethrin | | | Multiple | 500 | USEPA 8270E Solvent extraction followed by GC-MS or ISO 14154:2005 and determination by LCMS/LCMSMS | |
| 1C) Chlorinated Paraffins | | | | | | |
| Medium-chain chlorinated paraffins (MCCPs) (C14-C17) | µg/L | - | 85535-85-9 | 500 | - | EPA 3510 and analyzed by ISO18219-2:2021 Method for MCCP with GC-MS(NCI) or LC-MS/MS EPA 3510 and analyzed by ISO18219-1:2021, ISO 12010:2019 Methods for SCCP with GC-MS(NCI) or LC-MS/MS |
| Short-chain chlorinated paraffins (SCCPs) (C10-C13) | | | 85535-84-8 | 25 | | |
| 1D) Chlorobenzenes and Chlorotoluenes | | | | | | |
| 1,2-dichlorobenzene | µg/L | - | 95-50-1 | 0.2 | - | USEPA 8260D, 8270E, Purge and Trap, Head Space, Dichloromethane extraction followed by GC-MS |
| Other isomers of mono-, di-, tri-, tetra-, penta-, and hexa- chlorobenzene | | | Multiple | | | |
| Other isomers of mono-, di-, tri-, tetra-, and penta- chlorotoluene | | | | mg/kg | 0.2 | |
| 1E) Chlorophenols | | | | | | |
| 2-chlorophenol | µg/L | - | 95-57-8 | 0.5 | - | USEPA 8270E Solvent extraction, derivatisation with KOH, acetic anhydride followed by GC-MS, BS EN 12673-1999 the procedure of solvent extraction and derivatization are included |
| 3-chlorophenol | | | 108-43-0 | | | |
| 4-chlorophenol | | | 106-48-9 | | | |
| 2,3-dichlorophenol | | | 576-24-9 | | | |
| 2,4-dichlorophenol | | | 120-83-2 | | | |
| 2,5-dichlorophenol | | | 583-78-8 | | | |
| 2,6-dichlorophenol | | | 87-65-0 | | | |
| 3,4-dichlorophenol | | | 95-77-2 | | | |
| 3,5-dichlorophenol | | | 591-35-5 | | | |
| 2,3,4-trichlorophenol | | | 15950-66-0 | | | |
| 2,3,5-trichlorophenol | | | 933-78-8 | | | |
| 2,3,6-trichlorophenol | | | 933-75-5 | | | |
| 2,4,5-trichlorophenol | | | 95-95-4 | | | |
| 2,4,6-trichlorophenol | | | 88-06-2 | | | |
| 3,4,5-trichlorophenol | | | 609-19-8 | | | |
| 2,3,5,6-tetrachlorophenol | | | 935-95-5 | | | |
| 2,3,4,6-tetrachlorophenol | | | 58-90-2 | | | |
| 2,3,4,5-tetrachlorophenol | | | 4901-51-3 | | | |
| Pentachlorophenol (PCP) | | | 87-86-5 | | | |
| 1F) Dimethyl Formamide (DMFa) | | | | | | |
| Dimethyl formamide; N,N-dimethylformamide (DMFa) ^a | µg/L | - | 68-12-2 | 1000 | - | EPA 8015, EPA 8270E |

a = Report only for mock leather



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Appendix D - Test methods, reporting limits and CAS numbers (continued)

| Test Parameters | Unit | | CAS No. | LOQ | | Test methods |
|--|------------|--------|---------------|------------|--------|--------------------------|
| | Wastewater | Sludge | | Wastewater | Sludge | |
| 1G) Dyes - Carcinogenic or Equivalent Concern | | | | | | |
| Basic Violet 3 with >0.1% of Michler's Ketone | µg/L | - | 548-62-9 | 500 | - | Liquid extraction, LC-MS |
| C.I. Acid Red 26 | | | 3761-53-3 | | | |
| C.I. Acid Violet 49 | | | 1694-09-3 | | | |
| C.I. Basic Blue 26 (with Michler's Ketone > 0.1%) | | | 2580-56-5 | | | |
| C.I. Basic Green 4 (Malachite Green Chloride) | | | 569-64-2 | | | |
| C.I. Basic Green 4 (Malachite Green Oxalate) | | | 2437-29-8 | | | |
| C.I. Basic Green 4 (Malachite Green) | | | 10309-95-2 | | | |
| C.I. Basic Red 9 | | | 569-61-9 | | | |
| C.I. Basic Violet 14 | | | 632-99-5 | | | |
| C.I. Direct Black 38 | | | 1937-37-7 | | | |
| C.I. Direct Blue 6 | | | 2602-46-2 | | | |
| C.I. Direct Red 28 | | | 573-58-0 | | | |
| C.I. Disperse Blue 1 | | | 2475-45-8 | | | |
| C.I. Disperse Blue 3 | | | 2475-46-9 | | | |
| Disperse Orange 11 | | | 82-28-0 | | | |
| 1H) Dyes - Disperse (Allergenic) | | | | | | |
| Disperse Blue 102 | µg/L | - | 12222-97-8 | 50 | - | Liquid extraction, LC-MS |
| Disperse Blue 106 | | | 12223-01-7 | | | |
| Disperse Blue 124 | | | 61951-51-7 | | | |
| Disperse Blue 26 | | | 3860-63-7 | | | |
| Disperse Blue 35 | | | 12222-75-2 | | | |
| Disperse Blue 7 | | | 56524-77-7 | | | |
| Disperse Brown 1 | | | 3179-90-6 | | | |
| Disperse Orange 1 | | | 23355-64-8 | | | |
| Disperse Orange 3 | | | 2581-69-3 | | | |
| Disperse Orange 37/59/76 | | | 730-40-5 | | | |
| Disperse Red 1 | | | 13301-61-6 | | | |
| Disperse Red 11 | | | 2872-52-8 | | | |
| Disperse Red 17 | | | 2872-48-2 | | | |
| Disperse Yellow 1 | | | 3179-89-3 | | | |
| Disperse Yellow 3 | | | 119-15-3 | | | |
| Disperse Yellow 39 | | | 2832-40-8 | | | |
| Disperse Yellow 49 | | | 12236-29-2 | | | |
| Disperse Yellow 9 | | | 54824-37-2 | | | |
| Disperse Yellow 9 | 6373-73-5 | | | | | |
| 1I) Dyes - Navy Blue Colourant | | | | | | |
| Component 1: C39H23Cl-CrN7O12S 2Na | µg/L | - | 118685-33-9 | 500 | - | Liquid extraction, LC-MS |
| Component 2: C46H-30CrN10O20S2 3Na | | | Not Allocated | | | |



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Appendix D - Test methods, reporting limits and CAS numbers (continued)

| Test Parameters | Unit | | CAS No. | LOQ | | Test methods | | | |
|--|----------------------|------------|------------------------|------------|--------|--|-----|---|-----------------------------------|
| | Wastewater | Sludge | | Wastewater | Sludge | | | | |
| 1J) Flame Retardants | | | | | | | | | |
| 2,2-bis(bromomethyl)-1,3-propanediol (BBMD) | µg/L | - | 3296-90-0 | 25 | - | USEPA 8270E, ISO 22032, USEPA 527 and USEPA 8321B Dichloromethane extraction GC-MS or LC-MS(-MS) | | | |
| Bis(2,3-dibromopropyl) phosphate (BIS) | | | 5412-25-9 | | | | | | |
| Decabromodiphenyl ether (DecaBDE) | | | 1163-19-5 | | | | | | |
| Hexabromocyclodecane (HBCDD) | | | 3194-55-6 | | | | | | |
| Octabromodiphenyl ether (OctaBDE) | | | 32536-52-0 | | | | | | |
| Pentabromodiphenyl ether (PentaBDE) | | | 32534-81-9 | | | | | | |
| Polybromobiphenyls (PBB) | | | 59536-65-1 | | | | | | |
| Tetrabromobisphenol A (TBBPA) | | | 79-94-7 | | | | | | |
| Tris(2-chloro-1-methylethyl)phosphate (TCPP) | | | 13674-84-5 | | | | | | |
| Tris(1-aziridinyl)phosphine oxide (TEPA) | | | 545-55-1 | | | | | | |
| Tris(1,3-dichloro-isopropyl)phosphate (TDCP) | | | 13674-87-8 | | | | | | |
| Tris(2-chloroethyl)phosphate (TCEP) | | | 115-96-8 | | | | | | |
| Tris(2,3-dibromopropyl)-phosphate (TRIS) | | | 126-72-7 | | | | | | |
| Decabromobiphenyl (DecaBB) | | | 13654-09-6 | | | | | | |
| Dibromobiphenyls (DiBB) | | | Multiple | | | | | | |
| Octabromobiphenyls (OctaBB) | | | Multiple | | | | | | |
| Dibromopropylether | | | 21850-44-2 | | | | | | |
| Heptabromodiphenyl ether (HeptaBDE) | | | 68928-80-3 | | | | | | |
| Hexabromodiphenyl ether (HexaBDE) | | | 36483-60-0 | | | | | | |
| Monobromobiphenyls (MonoBB) | | | Multiple | | | | | | |
| Monobromodiphenylethers (MonoBDEs) | | | Multiple | | | | | | |
| Nonabromobiphenyls (NonaBB) | | | Multiple | | | | | | |
| Nonabromodiphenyl ether (NonaBDE) | | | 63936-56-1 | | | | | | |
| Tetrabromodiphenyl ether (TetraBDE) | | | 40088-47-9 | | | | | | |
| Tribromodiphenylethers (TriBDEs) | | | Multiple | | | | | | |
| Boric acid ^b | | | 10043-35-3, 11113-50-1 | | | | 100 | - | Determined as total boron via ICP |
| Diboron trioxide ^b | | | 1303-86-2 | | | | | | |
| Disodium octaborate ^b | 12008-41-2 | | | | | | | | |
| Disodium tetraborate anhydrous ^b | 1303-96-4, 1330-43-4 | | | | | | | | |
| Tetraboron disodium heptaoxide, hydrate ^b | | 12267-73-1 | | | | | | | |
| 1K) Glycols / Glycol Ethers | | | | | | | | | |
| 2-ethoxyethanol | µg/L | - | 110-80-5 | 50 | - | USEPA 8270E Liquid extraction, LC-MS GC-MS | | | |
| 2-ethoxyethyl acetate | | | 111-15-9 | | | | | | |
| 2-methoxyethanol | | | 109-86-4 | | | | | | |
| 2-methoxyethylacetate | | | 110-49-6 | | | | | | |
| 2-methoxypropylacetate | | | 70657-70-4 | | | | | | |
| Bis(2-methoxyethyl)-ether | | | 111-96-6 | | | | | | |
| Ethylene glycol dimethyl ether | | | 110-71-4 | | | | | | |
| Triethylene glycol dimethyl ether | | | 112-49-2 | | | | | | |
| 1L) Halogenated Solvents | | | | | | | | | |
| 1,2-dichloroethane | µg/L | - | 107-06-2 | 1 | - | USEPA 8260D Headspace GC-MS or Purge and trap GC-MS | | | |
| Methylene chloride | | | 75-09-2 | | | | | | |
| Tetrachloroethylene | | | 127-18-4 | | | | | | |
| Trichloroethylene | | | 79-01-6 | | | | | | |

b = Limit refer to elemental boron, not the salt.



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Appendix D - Test methods, reporting limits and CAS numbers (continued)

| Test Parameters | Unit | | CAS No. | LOQ | | Test methods |
|--|------------|--------|------------------------|------------|--------|---|
| | Wastewater | Sludge | | Wastewater | Sludge | |
| 1M) Organotin Compounds | | | | | | |
| Dipropyltin compounds (DPT) | µg/L | - | Multiple | 0.01 | - | ISO 17353 Derivatisation with NaB (C2H5)4 GC-MS |
| Mono-, di- and tri-butyltin derivatives | | | | | | |
| Mono-, di- and tri-methyltin derivatives | | | | | | |
| Mono-, di- and tri-octyltin derivatives | | | | | | |
| Mono-, di- and tri-phenyltin derivatives | | | | | | |
| Tetraethyltin compounds (TeET) | | | | | | |
| Tripolytin Compounds (TPT) | | | | | | |
| Tetraoctyltin compounds (TeOT) | | | | | | |
| Tricyclohexyltin (TCyHT) | | | | | | |
| Tetraethyltin Compounds (TeET) | | | | | | |
| 1N) Other/Miscellaneous Chemicals | | | | | | |
| AEEA [2-(2-aminoethylamino)ethanol] | µg/L | - | 111-41-1 | 500 | - | Liquid extraction, LC-MSMS |
| Bisphenol A | | | 80-05-7 | 10 | | |
| Thiourea | | | 62-56-6 | 50 | | Liquid extraction, LC-MS |
| Quinoline | | | 91-22-5 | 50 | | |
| Borate, zinc salt ^c | | | 12767-90-7 | 100 | | Determine as total boron and total zinc via ICP |
| Silica (Used in sand blasting) ^d | | | 14464-46-1 | NA | | Not a ZDHC Wastewater parameter |
| 1O) Perfluorinated and Polyfluorinated Chemicals (PFCs) | | | | | | |
| Perfluorooctane sulfonate (PFOS) and related substances, Perfluorooctanoic acid (PFOA) | µg/L | - | Multiple | 0.01 | - | PFCs: EPA 537:2020 FTOH: BS EN 12673-1999, EPA 8270 PFCs: LC-MSMS FTOH: GC-MS Derivatisation with acetic anhydride followed by GC-MS |
| Perfluorooctanoic acid (PFOA) related substances | | | | 1 | | |
| 1P) Phthalates - including all other esters of ortho-phthalic acid | | | | | | |
| 1,2-benzenedicarboxylic acid, di-C6-8 branched and linear alkyl esters, C7-rich (DIHP) | µg/L | - | 71888-89-6, 84777-06-0 | 10 | - | USEPA 8270E, ISO 18856 Dichloromethane extraction GC-MS |
| 1,2-benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters (DHNUP) | | | 68515-42-4, 68515-50-4 | | | |
| Bis(2-methoxyethyl)phthalate (DMEP) | | | 117-82-8 | | | |
| Butyl benzyl phthalate (BBP) | | | 85-68-7 | | | |
| Di-cyclohexyl phthalate (DCHP) | | | 84-61-7 | | | |
| Di-iso-decyl phthalate (DIDP) | | | 26761-40-0 | | | |
| Di-iso-octyl phthalate (DIOP) | | | 27554-26-3 | | | |
| Di-iso-butyl phthalate (DIBP) | | | 84-69-5 | | | |
| Di-iso-nonyl phthalate (DINP) | | | 28553-12-0 | | | |
| Di-n-hexyl phthalate (DnHP) | | | 84-75-3 | | | |
| Di-n-octyl phthalate (DNOP) | | | 117-84-0 | | | |
| Di-n-pentylphthalates | | | 131-18-0 | | | |
| Di-n-propyl phthalate (DPRP) | | | 131-16-8 | | | |
| Di(ethylhexyl) phthalate (DEHP) | | | 117-81-7 | | | |
| Dibutyl phthalate (DBP) | | | 84-74-2 | | | |
| Diethyl phthalate (DEP) | | | 84-66-2 | | | |
| Diisopentylphthalates | | | 605-50-5 | | | |
| Dinonyl phthalate (DNP) | | | 84-76-4 | | | |

c = Limit refers to elemental boron and/or zinc, not the salt.

d = Not required to test this parameter as this is related to sand blasting



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Appendix D - Test methods, reporting limits and CAS numbers (continued)

| Test Parameters | Unit | | CAS No. | LOQ | | Test methods | | | | |
|---|------------|--------|------------|------------|--------|--|--|--|--|--|
| | Wastewater | Sludge | | Wastewater | Sludge | | | | | |
| 1Q) Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| Acenaphthene | µg/L | mg/kg | 83-32-9 | 1 | 0.2 | USEPA 8270E DIN 38407-39 Solvent extraction GC-MS | | | | |
| Acenaphthylene | | | 208-96-8 | | | | | | | |
| Anthracene | | | 120-12-7 | | | | | | | |
| Benzo[a]anthracene | | | 56-55-3 | | | | | | | |
| Benzo[a]pyrene (BaP) | | | 50-32-8 | | | | | | | |
| Benzo[b]fluoranthene | | | 205-99-2 | | | | | | | |
| Benzo[e]pyrene | | | 192-97-2 | | | | | | | |
| Benzo[ghi]perylene | | | 191-24-2 | | | | | | | |
| Benzo[j]fluoranthene | | | 205-82-3 | | | | | | | |
| Benzo[k]fluoranthene | | | 207-08-9 | | | | | | | |
| Chrysene | | | 218-01-9 | | | | | | | |
| Dibenz[a,h]anthracene | | | 53-70-3 | | | | | | | |
| Fluoranthene | | | 206-44-0 | | | | | | | |
| Fluorene | | | 86-73-7 | | | | | | | |
| Indeno[1,2,3-cd]pyrene | | | 193-39-5 | | | | | | | |
| Naphthalene | | | 91-20-3 | | | | | | | |
| Phenanthrene | | | 85-01-8 | | | | | | | |
| Pyrene | 129-00-0 | | | | | | | | | |
| 1R) Restricted Aromatic Amines (Cleavable from Azo-colourants) | | | | | | | | | | |
| 2-naphthylamine | µg/L | - | 91-59-8 | 0.1 | - | Reduction step with sodium dithionite, solvent extraction EPA 8270 | | | | |
| 2-naphthylammoniumacetate | | | 553-00-4 | | | | | | | |
| 2,4-xylidine | | | 95-68-1 | | | | | | | |
| 2,4,5-trimethylaniline | | | 137-17-7 | | | | | | | |
| 2,4,5-trimethylaniline hydrochloride | | | 21436-97-5 | | | | | | | |
| 2,6-xylidine | | | 87-62-7 | | | | | | | |
| 3,3'-dichlorobenzidine | | | 91-94-1 | | | | | | | |
| 3,3-dimethoxybenzidine | | | 119-90-4 | | | | | | | |
| 4-aminoazobenzene | | | 60-09-3 | | | | | | | |
| 4-aminodiphenyl | | | 92-67-1 | | | | | | | |
| 4-chloro-o-toluidine | | | 95-69-2 | | | | | | | |
| 4-chloro-o-toluidinium chloride | | | 3165-93-3 | | | | | | | |
| 4-chloroaniline | | | 106-47-8 | | | | | | | |
| 4-methoxy-m-phenylene diammonium sulphate; | | | 39156-41-7 | | | | | | | |
| 2,4-diaminoanisole sulphate | | | 615-05-4 | | | | | | | |
| 4-methoxy-m-phenylenediamine | | | 95-80-7 | | | | | | | |
| 4-methyl-m-phenylenediamine | | | 101-14-4 | | | | | | | |
| 4,4-methylene-bis-(2-chloro-aniline) | | | 838-88-0 | | | | | | | |
| 4,4-methylenedi-o-toluidine | | | 101-77-9 | | | | | | | |
| 4,4-methylenedianiline | | | 101-80-4 | | | | | | | |
| 4,4-thiodianiline | | | 139-65-1 | | | | | | | |
| 5-nitro-o-toluidine | | | 99-55-8 | | | | | | | |
| 6-methoxy-m-toluidine | | | 120-71-8 | | | | | | | |
| Benzidine | | | 92-87-5 | | | | | | | |
| o-aminoazotoluene | | | 97-56-3 | | | | | | | |
| o-anisidine | | | 90-04-0 | | | | | | | |
| o-toluidine | | | 95-53-4 | | | | | | | |
| | | | | | | | | | | Reduction step with sodium dithionite, solvent extraction EPA 8270E and ISO 14362-1 GC/MS and LC/MS/MS |



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Appendix D - Test methods, reporting limits and CAS numbers (continued)

| Test Parameters | Unit | | CAS No. | LOQ | | Test methods |
|---|------------|--------|------------|------------|--------|---|
| | Wastewater | Sludge | | Wastewater | Sludge | |
| 1S) UV Absorbers | | | | | | |
| 2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl) phenol (UV-350) | µg/L | - | 36437-37-3 | 100 | - | USEPA 8270 ISO 22032, USEPA 527 and USEPA 8321B. Dichloromethane extraction GC-MS or LC-MS(-MS) |
| 2-(2H-benzotriazol-2-yl)-4,6- ditertpentylphenol (UV-328) | | | 25973-55-1 | | | |
| 2-benzotriazol-2-yl-4,6-di-tert- butylphenol (UV-320) | | | 3846-71-7 | | | |
| 2,4-Di-tert-butyl-6-(5- chlorobenzotriazole-2-yl) phenol (UV-327) | | | 3864-99-1 | | | |
| 1T) Volatile Organic Compounds (VOC) | | | | | | |
| Benzene | µg/L | - | 71-43-2 | 1 | - | ISO 11423-1 Headspace or Purge and trap GC-MS USEPA 8260D Add ISO 20595 Static headspace for ISO 11423-1 Headspace or Purge and trap GC-MS EPA 8270 BS EN 12673-1999 ISO 11423-1 Headspace or Purge and trap GC-MS USEPA 8260D HJ 1067 or EPA 8260D or ISO 11423-1 |
| m-cresol | | | 108-39-4 | | | |
| o-cresol | | | 95-48-7 | | | |
| p-cresol | | | 106-44-5 | | | |
| Xylene | | | 1330-20-7 | | | |
| Toluene ^a | | | 108-88-3 | | | |

a = Report only for mock leather



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Appendix D - Test methods, reporting limits and CAS numbers (continued)

| Test Parameters | Unit | | CAS No. | LOQ | | Test methods |
|--|-----------------------|-----------|------------|------------|--------|--|
| | Wastewater & Leachate | Sludge | | Wastewater | Sludge | |
| Heavy Metals | | | | | | |
| Antimony | mg/L | mg/kg | 7440-36-0 | 0.01 | 5 | With reference to EPA 3015A, 6020A, 200.8, 6020B, 3051A and ISO 17294-2 and analyzed by ICP-MS With reference to EPA 1311 and HJ/T 300 for leachate |
| Chromium (VI) | | | 18540-29-9 | 0.001 | 20 | |
| Barium | | | 7440-39-3 | 1 | 200 | |
| Selenium | | | 7782-49-2 | 1 | 5 | |
| Tin | | | 7440-31-5 | 1 | - | |
| Arsenic | | | 7440-38-2 | 0.005 | 5 | |
| Total Chromium | | | 7440-47-3 | 0.05 | 50 | |
| Cobalt | | | 7440-48-4 | 0.01 | 400 | |
| Cadmium | | | 7440-43-9 | 0.01 | 1 | |
| Copper | | | 7440-50-8 | 0.25 | 50 | |
| Lead | | | 7439-92-1 | 0.01 | 5 | |
| Nickel | | | 7440-02-0 | 0.05 | 20 | |
| Silver | | | 7440-22-4 | 0.005 | 50 | |
| Zinc | | | 7440-66-6 | 0.5 | 400 | |
| Mercury | 7439-97-6 | 0.001 | 1 | | | |
| Conventional | | | | | | |
| pH | pH | pH | | 6 - 9 | | EPA 150.2, APHA 4500- H+ For Water & EPA SW 9045D For Sludge |
| Temperature difference | °C | | | - | | Measurement by thermometer |
| E.coli | cfu/100-ml | | | 126 | | APHA 9221 G |
| Colour | m ⁻¹ | | | 2;1;1 | | ISO 7887: 2011(E), B |
| Persistent Foam | - | | | - | | Visual |
| Wastewater Flowrate | m ³ /day | | | - | | - |
| Ammonium-Nitrogen | mg/L | | | 0.5 | | Reference to APHA 4500-NH ₃ - N |
| AOX | mg/L | | | 0.1 | | Reference to ISO 9562 |
| Biochemical Oxygen Demand 5-days concentration (BOD ₅) | mg/L | | | 8 | | Reference to APHA 5210B (5 days) |
| Chemical Oxygen Demand (COD) | mg/L | | | 40 | | Reference to APHA 5220 D |
| Dissolved Oxygen (DO) | mg/L | | | - | | Hach manual for LDO & In-house |
| Oil & Grease | mg/L | | | 0.5 | | Reference to EPA 1664 |
| Total Phenols / Phenol Index | mg/L | | | 0.001 | | Reference to APHA 5530 C |
| Total Chlorine | mg/L | | | 0.1 | | APHA 4500-Cl G |
| Total Dissolved Solids (TDS) | mg/L | | | 5 | | APHA 22nd Edition-2540C |
| Total Nitrogen | mg/L | | | 5 | | Reference to APHA 4500- N-C |
| Total Phosphorus | mg/L | | | 0.1 | | Reference to APHA 4500-P-J |
| Total Suspended Solids (TSS) | mg/L | | | 5 | | APHA 2540D, GB 11901, ISO 11923 |
| % Solids | - | % | | - | - | USEPA 160.3 |
| Paint Filter Test | - | - | | - | - | EPA 9095B |
| Fecal Coliform | - | MPN/100ml | | - | - | EPA Method 1681 |



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Appendix D - Test methods, reporting limits and CAS numbers (continued)

| Test Parameters | Unit | | CAS No. | LOQ | | Test methods |
|-----------------|-----------------------|--------|---------|------------|--------|---|
| | Wastewater & Leachate | Sludge | | Wastewater | Sludge | |
| Anions | | | | | | |
| Chloride | mg/L | - | - | - | - | APHA 4500-Cl B |
| Cyanide, total | | mg/kg | | 0.05 | 20 | APHA 22nd Edition-4500-CN. C&E (2012), EPA 9010C, 9013 & 9014 |
| Sulfate | | - | | - | - | APHA- 4500 SO4-E (2012) |
| Sulfide | | - | | 0.01 | - | Reference to APHA 4500-S2-D |
| Sulfite | | - | | 0.2 | - | Reference to EPA 377.1 |

Remark-1: The report [(6823)105-0087] is sub-contracted to India (Testtex India Laboratories Pvt. Ltd.) for AOX, T-Nitrogen, UV Absorbers & Other/Miscellaneous Chemicals Tests.

Remark-2: The report [(6823)105-0087] is sub-contracted to Sri Lanka (BVCPS Lanka PVT. Ltd.) for E. coli & Fecal Coliform Tests.

END OF REPORT