TEST REPORT

Technical Report **(6218)058-0114** March 31, 2018
Date Received February 27, 2018 Page 1 of 22

Factory Company Name: [redacted]
Factory Address: [redacted]
Project No.: /
Client Reference No.: /
Sample Method: I001) Incoming water – Grab
I002) Treated Wastewater – 6 hours - Time – weighted Composite
I003) Sludge – Grab
Sample Pick Up Date: February 27, 2018
Wastewater Discharge to: Factory Owned ETP
On-Site Effluent Treatment Plant (ETP): Yes
Discharge Type: Direct Discharge
Test Period: February 27, 2018 to March 19, 2018

Sample Description:

I001) < Colorless Liquid – Incoming water>
I002) < Transparent Yellow Liquid – Treated Wastewater>
I003) < Dark Brown Solid – Sludge >

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

Technical enquiry-Chemical: chemical.inquiry@tw.bureauveritas.com

This report shown the test result of the auxiliary chemical and/or raw material samples, which collected during particular factory audit. The results of this report shall not be used for any regulatory compliance purposes.

* The sampling is agreed with client.

BUREAU VERITAS CONSUMER PRODUCTS SERVICES (H.K.) LIMITED, TAIWAN BRANCH

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Photo of the Sample/ Sampling Location

I001) N 25º 03' 37.4" E 121º 16' 51.4"	I001 surrounding) N 25º 03' 37.4" E 121º 16' 51.4"
	
I002) N 25º 03' 38.6" E 121º 16' 52.1"	I002 surrounding) N 25º 03' 38.6" E 121º 16' 52.1"
	

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Photo of the Sample/ Sampling Location

I003) N 25° 03' 35.1" E 121° 16' 51.7"	I003 surrounding) N 25° 03' 35.1" E 121° 16' 51.7"
	

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Executive Summary

1A) Conventional Parameters	I001	I002	I003
Temperature	N/A	See result in page 6 – 10	N/A
TSS			
COD			
Total-N			
pH Value			
Color [m^{-1}] (436nm; 525nm; 620nm)			
Color			
BOD_5			
Ammonium-N			
Total-P			
AOX			
Oil and Grease			
Phenol			
Coliform			
Foam			
ANIONS - Sulfide			
ANIONS - Sulfite			
1B) Conventional Parameters –METALS	•	•	•

ZDHC MRSL Substances	I001	I002	I003
2A) APs and APEOs	NR	o	o
2B) Chlorobenzenes and Chlorotoluenes	NR	o	o
2C) Chlorophenols	NR	o	o
2D) Azo Dyes	NR	o	o
2E) Carcinogenic Dyes	NR	o	o
2F) Disperse Dyes	NR	o	o
2G) Flame Retardants	NR	o	o
2H) Glycols	NR	o	o
2I) Halogenated Solvents	NR	o	o
2J) Organotin Compounds	NR	o	o
2K) Perfluorinated and Polyfluorinated Chemicals	NR	o	o
2L) Phthalates	NR	o	o
2M) Poly Aromatic Hydrocarbons	NR	o	o
2N) Volatile Organic Compounds	NR	o	o

Note / Key :

- • – Detected
- o – Not Detected
- NR – Not Requested
- N/A – Not Applicable

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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, three environment samples were sampled per factory, including 1) Incoming water; 2) Discharged Wastewater (treated wastewater) and 3) 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 B.

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Test Result

1A) Conventional Parameters

Temperature

Test Method : Measurement by thermometer

Tested Item(s)	Result	Unit	Conclusion
I002	27.4 Progressive	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 ISO 11923/ U. S. EPA 160.2/ NIEA W210.58A

Tested Item(s)	Result	Unit	Conclusion
I002	6.4 Progressive	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 ISO 6060/ U. S. EPA 410.4/ NIEA W515.54A

Tested Item(s)	Result	Unit	Conclusion
I002	150 Foundational	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 ISO 5663/ ISO 29441/ U. S. EPA 351.2/ NIEA W423.52C

Tested Item(s)	Result	Unit	Conclusion
I002	1.42 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 ISO 10523/ U. S. EPA 150.1

-	Unit	Result
Test Item(s)	-	I002
Parameter	-	-
Temp. of sample	deg. C	27.4
pH value of sample	-	7.4
Conclusion	-	DATA

Note:
Temp. = Temperature deg. C = degree Celsius (°C)
Limit: 6 - 9

Color [m^{-1}] (436nm; 525nm; 620nm)

Test Method : With reference to ISO 7887-B

Tested Item(s)	Result	Unit	Conclusion
I002	4.2,1.7,0.7 Progressive	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}

Color

Test Method : With reference to ISO 7887-A: 2011/ NIEA W223.52B

Tested Item(s)	Result	Unit	Conclusion
I002	139	Pt-Co	DATA

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Biochemical Oxygen Demand (BOD_5)

Test Method : Reference to ISO 5815-1 & -2/ U. S. EPA 405.1/ NIEA W510.55B

Tested Item(s)	Result	Unit	Conclusion
I002	8.0 Progressive	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 ISO 11732/ ISO 7150/ U. S. EPA 350.1/ NIEA W437.52C

Tested Item(s)	Result	Unit	Conclusion
I002	0.04 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 ISO 11885/ ISO 6878/ U. S. EPA 365.4/ NIEA W427.53B

Tested Item(s)	Result	Unit	Conclusion
I002	0.007 Aspirational	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 HJ/T 83

Tested Item(s)	Result	Unit	Conclusion
I002	0.485 Progressive	mg/L	DATA

Note:
mg/L = milligram per liter
Foundational Limit: 5 mg/L; Progressive Limit: 1 mg/L; Aspirational Limit: 0.1 mg/L

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Oil and Grease

Test Method : Reference to ISO 9377-2/ U. S. EPA 1664/ NIEA W505.52C

Tested Item(s)	Result	Unit	Conclusion
I002	< 2 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 ISO 14402/ NIEA W524.50C

Tested Item(s)	Result	Unit	Conclusion
I002	0.959 Exceeded Foundational Limit	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/ U. S. EPA 9132/ NIEA E202.55B

Tested Item(s)	Result	Unit	Conclusion
I002	<10 Aspirational	bacteria/ 100 mL	DATA

Note:
bacteria/100 mL = bacteria per 100 milliliters
Foundational Limit: 400 / 100 ml; Progressive Limit: 100 / 100 ml; Aspirational Limit: 25 / 100 ml;

Foam

Test Method : Visual

Tested Item(s)	Result	Unit	Conclusion
I002	Dissipating	-	DATA

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ANIONS - Sulfide

Test Method **:** Reference to ISO 10530/ NIEA W433.52A

Tested Item(s)	Result	Unit	Conclusion
I002	< 0.1 Foundational	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 ISO 10304-3

Tested Item(s)	Result	Unit	Conclusion
I002	0.213 Progressive	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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1B) Conventional Parameters – METALS

Heavy Metals	**I001** ***(mg/L)***	**I002** ***(mg/L)***	**I003** ***(mg/kg)***
Antimony(Sb) *Foundational Limit: 0.1 mg/L;* *Progressive Limit: 0.05 mg/L;* *Aspirational Limit: 0.01 mg/L*	ND	0.559 Exceeded Foundational Limit	N/A
Chromium(Cr), total *Foundational Limit: 0.2 mg/L;* *Progressive Limit: 0.1 mg/L;* *Aspirational Limit: 0.05 mg/L*	0.001 Aspirational	0.004 Aspirational	
Cobalt(Co) *Foundational Limit: 0.05 mg/L;* *Progressive Limit: 0.02 mg/L;* *Aspirational Limit: 0.01 mg/L*	ND	0.002 Aspirational	
Copper(Cu) *Foundational Limit: 1 mg/L;* *Progressive Limit: 0.5 mg/L;* *Aspirational Limit: 0.25 mg/L*	0.047 Aspirational	0.044 Aspirational	
Nickel (Ni) *Foundational Limit: 0.2 mg/L;* *Progressive Limit: 0.1 mg/L;* *Aspirational Limit: 0.05 mg/L*	0.001 Aspirational	0.006 Aspirational	
Silver (Ag) *Foundational Limit: 0.1 mg/L;* *Progressive Limit: 0.05 mg/L;* *Aspirational Limit: 0.005 mg/L*	ND	0.024 Progressive	
Zinc(Zn) *Foundational Limit: 5 mg/L;* *Progressive Limit: 1 mg/L;* *Aspirational Limit: 0.5 mg/L*	0.044 Aspirational	0.101 Aspirational	
Arsenic (As) *Foundational Limit: 0.05 mg/L;* *Progressive Limit: 0.01 mg/L;* *Aspirational Limit: 0.005 mg/L*	ND	ND	3
Cadmium(Cd) *Foundational Limit: 0.1 mg/L;* *Progressive Limit: 0.05 mg/L;* *Aspirational Limit: 0.01 mg/L*	ND	ND	ND
Lead(Pb) *Foundational Limit:0.1 mg/L;* *Progressive Limit: 0.05 mg/L;* *Aspirational Limit: 0.01 mg/L*	0.002 Aspirational	0.003 Aspirational	30
Mercury (Hg) *Foundational Limit: 0.01 mg/L;* *Progressive Limit: 0.005 mg/L;* *Aspirational Limit: 0.001 mg/L*	ND	ND	0.3
Chromium VI(CrVI) *Foundational Limit: 0.05 mg/L;* *Progressive Limit: 0.005 mg/L;* *Aspirational Limit: 0.001 mg/L*	ND	ND	ND
Cyanide(CN-) *Foundational Limit: 0.2 mg/L;* *Progressive Limit: 0.1 mg/L;* *Aspirational Limit: 0.05 mg/L*	ND	ND	ND

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Others Priority Chemical Groups

	I001 ***(ug/L)***	**I002** ***(ug/L)***	**I003** ***(mg/kg)***
2A) APs and APEOs	NR	ND	ND
2B) Chlorobenzenes and Chlorotoluenes	NR	ND	ND
2C) Chlorophenols	NR	ND	ND
2D) Azo Dyes	NR	ND	ND
2E) Carcinogenic Dyes	NR	ND	ND
2F) Disperse Dyes	NR	ND	ND
2G) Flame Retardants	NR	ND	ND
2H) Glycols	NR	ND	ND
2I) Halogenated Solvents	NR	ND	ND
2J) Organotin Compounds	NR	ND	ND
2K) Perfluorinated and Polyfluorinated Chemicals	NR	ND	ND
2L) Phthalates	NR	ND	ND
2M) Poly Aromatic Hydrocarbons	NR	ND	ND
2N) Volatile Organic Compounds	NR	ND	ND

Remark：

- Test method, reporting limit and list of chemical are summarized in tables of Appendix A.
- ND = Not detected (Please refer to reporting limit shown in Appendix A.).
- All results are in ppb as unit.
- ppm = part(s) per million; ppb = part(s) per billion.

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APPENDIX A

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) OPEO/NPEO: ISO18857-2 or ASTM D7065(LC/MS; GC/MS or LC/MSMS for n=1,2) APEO 1-18
	Nonylphenol NP	Various (incl. 104-40-5, 11066-49-2, 25154-52-3, 84852-15-3)	5	0.2	
	Octylphenol Ethoxylates OP1EO	Various	5	0.2	
	Nonylphenol Ethoxylates OPEO (2-16)	Various (incl. 9002-93-1, 9036-19-5, 68987-90-6)	5	0.2	
	Nonylphenol Ethoxylates NP1EO	Various	5	0.2	
	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-Tetraclorobenzene	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	
	2,3,4,6-Tetrachlorotoluene	875-40-1	0.2	0.1	
	Pentachlorotoluene	877-11-2	0.2	0.1	

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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)	
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)	
Carcionogenic 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 (withMichler'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	59536-65-1	5	1	

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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)	
	(PBBs)				
	Tetrabromobisphenol A (TBBPA)	79-94-7	5	1	
	Hexabromocyclododecane (HBCDD)	3194-55-6	5	1	
	2,2-Bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0	5	1	
	Tris(1,3-dichloro-isopropyl) 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	
	Triethylene glycol dimethyl ether	112-49-2	50	5	
2I. Halogenated Solvents	1,2-Dichloroethane	107-06-2	1	1	USEPA 8260B Headspace GC/MS or Purgeand-Trap-GC/MS
	Methylene Chloride	75-09-2	1	1	
	Trichloroethylene	79-01-6	1	1	
	Tetrachloroethylene	127-18-4	1	1	
2J. Organotin Compounds	Monobutyltin (MBT)	Various (incl. 78763-54-9, 1118-46-3)	0.01	0.1	ISO 17353 Derivatisation with NaB(C2H5) GC/MS
	Dibutyltin (DBT)	Various (incl. 1002-53-5, 683-18-1)	0.01	0.1	
	Dioctyltin (DOT)	Various (incl. 94410-05-6, 3542-36-7	0.01	0.1	
	Tributyltin (TBT)	Various (incl. 36643-28-4, 56573-85-4, 1461-22-9)	0.01	0.1	
	Triphenyltin (TPhT)	Various (incl. 892-20-6, 639-58-7, 668-34-8)	0.01	0.1	
	Tricyclohexyltin (TCyT)	Various (incl. 6056-50-4, 3091-32-5)	0.01	0.1	
	Trioctyltin (TOT)	Various (incl. 869-59-0, 2587-76-0)	0.01	0.1	
	Tripropyltin (TPT)	Various (incl. 688-73-3, 2279-76-7)	0.01	0.1	
	Monooctyltin (MOT)	Various (incl. 15231-44-4, 3091-25-6)	0.01	0.1	
	Diphenyltin (DPhT)	Various (incl. 1011-95-6, 6381-06-2, 1135-99-5)	0.01	0.1	
	Tetrabutyltin (TeBT)	1461-25-2	0.01	0.1	
	Mono-, di- and tri-methyltin 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,	0.01	0.1	

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			Wastewater (ug/L)/(ppb)	Sludge (mg/kg)/(ppm)	
		683-18-1, 36643-28-4, 56573-85-4, 1461-22-9)			
	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	
	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	
2K. Perfluorinated and Polyfluorinated Chemicals (PFCs)	Perfluorooctanesulfonic acid (PFOS)	355-46-4 ,432-50-7	0.01	0.05	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
	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	
	Perfluorobutyric Acid (PFBA)	375-22-4	0.01	0.05	
	8:2 FTOH	**678-39-7**	**1**	0.5	
	6:2 FTOH	**647-42-7**	**1**	0.5	
2L. Phthalates (including all other esthers of phthalic acid)	Di-2-ethylhexyl phthalate (DEHP)	117-81-7	10	1	US EPA 8270D, ISO 18856 Dichloromethane extraction GC/MS
	Dimethoxyethyl phthalate (DMEP)	117-82-8	10	1	
	Di-n-octyl phthalate (DNOP)	117-84-0	10	1	
	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	

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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)	
	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 apply to the region (ISO, EU, US, China), please refer to ZDHC Wastewater Guidelines for more details on the testing method and the levels (Foundational, Progressive, and Aspirational).
	TSS	—	N/A	N/A	
	COD	—	N/A	N/A	
	Total-N	—	N/A	N/A	
	pH	—	N/A	N/A	
	Color [m^{-1}] (436nm; 525nm; 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	

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Group	Substance (Testing parameter)	CAS No.	Report Limit		Name of the 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 (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	
	Chromium VI(CrVI)	18540-29-9	0.001	1	Various Solvent extraction and derivatisation followed by UV analysis
	Cyanide(CN-)	Various (incl. 57-12-5)	0.02	0.5	With reference to APHA 4500 CN— B,C&E and followed by UV analysis

Note / Key :

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

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APPENDIX B

General Data

Laboratory Sample Number	MC 20180227 IW
Client Name	
Field Contact Person	Phone No:
Project (Facility Name and Address)	
Sampling Location / Description	[redacted]
Sample Identification	
Sample Type	
Name of Sampler	[redacted]
Discharge mode	/
Date and time collected	2018/2/27 10:09
Factory Type	Dyeing/ Printing/ Washing/ Finishing/ Other (please specify)

*Note: It would be selected more than one

Field Data for wastewater

Factory with effluent treatment plant	Yes				No			
Sample matrix	X	Incoming water						
		Wastewater before treatment						
		Wastewater after treatment – water at discharge point						
Field Parameters	1	2	3	4	5	6	7	
Recording time	10:09							
pH :	8.09							
Temp (°C) :	28.5							
Color :	Transparent coloured							
Sample container number								
Volume collected, mL								
Total volume collected		Remark: Total volumn collected must be greater than total of sample size required						

Analysis Required and Preservation Method

Tests	Test required	Total of sample size	Type of container	Preservation method
1. Phthalate		500 mL	Amber Glass,wash with nitric acid, rinse thoroughly with distillated water and dry before use	Without adding acid Store sample at 4°C
2. Brominated and chlorinated Flame retardant		500 mL		
3. Banned Azodyes		500 mL		
4. Organotin Compounds		500 mL		
7. SCCPs		500 mL		
6. Navy Blue		10 mL		
7. Free primary aromatic amines		500 mL		
8. Dyes		500 mL		
9. Flame retardant		500 mL		
10. Glycol		500 mL		
11. Chlorobenzenes & Polynuclear aromatic hydrocarbons (PAHs)		1000 mL	Amber Glass, wash with nitric acid; Pre-add 6.5 mL of 2M HCl	Acidify to ~pH 2 with HCl and store sample at 4°C
12. Chlorophenols		500 mL		
13. APEOs/APs		500 mL		
14. Chlorinated Solvents		500 mL		Fill to full bottle without air; acidify to ~pH 2 with HCl and store sample at 4°C
15. Heavy Metals except CrVI		500 mL	PE, wash with nitric acid, pre-add 6.5mL of 2M HNO3	Acidify to pH 2 with HNO_3 and store at 4°C
16. CrVI		500 mL	Amber Glass, wash with pesticide grade acetone	Fill to full bottle without air nor adding acid and store sample at 4°C
17. PFCs		500 mL	PE, wash with pesticide grade Acetone;	Without adding acid Store sample at 4°C
18. Cyanide		500 mL	Amber Glass, wash with pesticide grade acetone	Adjust pH 12 with 50% NaOH and store at 4°C

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General Data

Laboratory Sample Number	MC 20180227 AT
Client Name	
Field Contact Person	Phone No:
Project (Facility Name and Address)	
Sampling Location / Description	[redacted]
Sample Identification	
Sample Type	
Name of Sampler	[redacted]
Discharge mode	Direct discharge to environment (Specify destination: River, Sea, Stream…)
Date and time collected	2018/2/27 10:30
Factory Type	Dyeing/ Printing/ Washing/ Finishing/ Other (please specify) _____
	*Note: It would be selected more than one

Field Data for wastewater

Factory with effluent treatment plant	Yes				No			
Sample matrix		Incoming water						
		Wastewater before treatment						
	X	Wastewater after treatment – water at discharge point						
Field Parameters	1	2	3	4	5	6	7	
Recording time	10:30	11:30	12:30	13:30	14:30	15:30		
pH :	7.38							
Temp (°C) :	27.4							
Color :	Transparent yellow coloured							
Sample container number								
Volume collected, mL								
Total volume collected		Remark: Total volumn collected must be greater than total of sample size required						

Analysis Required and Preservation Method

Tests	Test required	Total of sample size	Type of container	Preservation method
1. Phthalate		500 mL	Amber Glass,wash with nitric acid, rinse thoroughly with distillated water and dry before use	Without adding acid Store sample at 4°C
2. Brominated and chlorinated Flame retardant		500 mL		
3. Banned Azodyes		500 mL		
4. Organotin Compounds		500 mL		
7. SCCPs		500 mL		
6. Navy Blue		10 mL		
7. Free primary aromatic amines		500 mL		
8. Dyes		500 mL		
9. Flame retardant		500 mL		
10. Glycol		500 mL		
11. Chlorobenzenes & Polynuclear aromatic hydrocarbons (PAHs)		1000 mL	Amber Glass, wash with nitric acid; Pre-add 6.5 mL of 2M HCl	Acidify to ~pH 2 with HCl and store sample at 4°C
12. Chlorophenols		500 mL		
13. APEOs/APs		500 mL		
14. Chlorinated Solvents		500 mL		Fill to full bottle without air; acidify to ~pH 2 with HCl and store sample at 4°C
15. Heavy Metals except CrVI		500 mL	PE, wash with nitric acid, pre-add 6.5mL of 2M HNO3	Acidify to pH 2 with HNO_3 and store at 4°C
16. CrVI		500 mL	Amber Glass, wash with pesticide grade acetone	Fill to full bottle without air nor adding acid and store sample at 4°C
17. PFCs		500 mL	PE, wash with pesticide grade Acetone;	Without adding acid Store sample at 4°C
18. Cyanide		500 mL	Amber Glass, wash with pesticide grade acetone	Adjust pH 12 with 50% NaOH and store at 4°C

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General Data

Laboratory Sample Number	MC 20180227 SC
Client Name	
Field Contact Person	Phone No:
Project (Facility Name and Address)	
Sampling Location / Description	[redacted]
Sample Identification	
Sample Type	
Name of Sampler	[redacted]
Discharge mode	/
Date and time collected	2018/2/27 10:43
Factory Type	Dyeing/ Printing/ Washing/ Finishing/ Other (please specify)

*Note: It would be selected more than one

Field Data for Sludge

Field Parameters	pH :	Temp : °C	Color :
Control No. of field equipment			

Analysis Required and Preservation Method

Factory with effluent treatment plant	Yes		No	
Sample matrix	X	Sludge in clarifier (sedimentation tank)		
Sampler container number				
Recording time	09:50			
Tests	Test required	Total of sample size	Type of container	Preservation method
1. Phthalate		10 g	Amber Glass, wash with nitric acid	Fill to full bottle without air and store at 4oC
2. Brominated and chlorinated Flame retardant		10 g		
3. Banned Azodyes		10 g		
4. Organotin Compounds		10 g		
5. Chlorobenzenes		10 g		
6. Chlorophenols		10 g		
7. SCCPs		10 g		
8. APEOs/APs		10 g		
9. Dyes		10 g		
10. Flame retardant		10 g		
11. Navy Blue		10 g		
12. Free primary aromatic amines		10 g		
13. Glycols		10 g		
14. Heavy Metals except CrVI		10 g	PE, wash with nitric acid	Fill to full bottle without air and store at 4oC
15. CrVI		10 g	Amber Glass, wash with pesticide grade acetone	Fill to full bottle without adding acid and store at 4oC
16. Chlorinated Solvents		10 g		
17. PFCs		10 g	PE, wash with pesticide garde acetone	Fill to full bottle without air and store at 4oC
18. Cyanide		50g	Amber Glass, wash with pesticide grade acetone	Adjust pH 12 with 50% NaOH and store at 4oC

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