



DISCHARGE DATA IN 2016 SUMMARY REPORT

Issued in April 2017

INTRODUCTION

H&M's chemical management vision is to ensure safe products made in a healthy workplace while protecting the environment. We are also committed to eliminate the use of hazardous chemicals in supply chain by 2020. To achieve this goal, it is important to work together with our industry and a broad array of other stakeholders to minimize the usage of hazardous chemicals in manufacturing process.

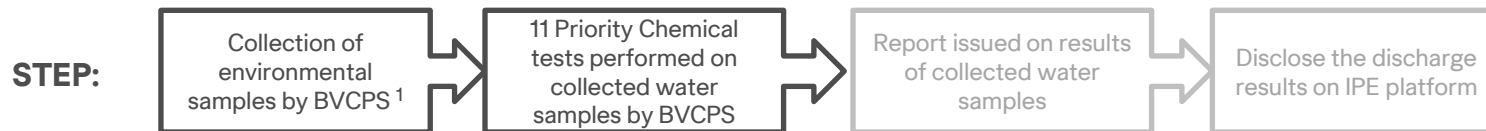
Since 2012, H&M has been monitoring the chemical discharge situation of factories in different countries. In the study, 11 priority chemical groups are tested in incoming water and discharged waste water every year. Discharge result would be disclosed in public accessible platform , the Institute of Public and Environmental Affairs (IPE), www.ipe.org.cn.

In 2016, we carried out this study in six main production countries : **Bangladesh, Cambodia, China, India, Indonesia, Vietnam**. The analyte list of priority chemical groups is currently extended from 121 to 193 analytes. In this summary report, there are two parts with action plan discussed. The first part includes the discharge result analysis for 2016 data while the second part includes the discharge result analysis per different production countries.

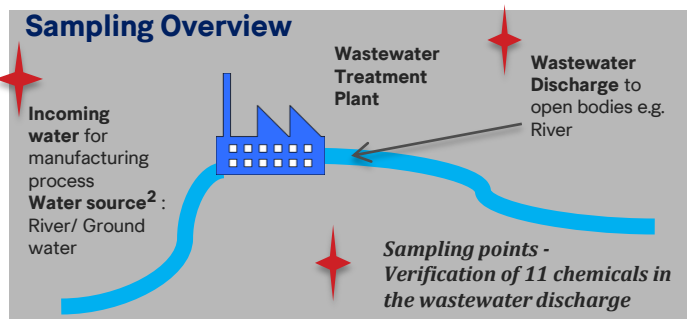


METHODOLOGY

Objective : To study if 11 priority chemical groups are released in discharged water from factory



Service Provider: Bureau Veritas Consumer Products Service (BVPCS)



Sampling time

Between 2:00 – 5:00 pm,
factory under normal operation

11 Priority Chemicals³ :

1. Alkylphenols (APs) & Alkylphenol Ethoxylates (APEOs)
2. Azo Dyes
3. Brominated and Chlorinated Flame Retardants
4. Chlorinated solvents
5. Chlorinated Aromatic Hydrocarbons (Chlorobenzenes & Chlorotoluenes)
6. Chlorophenols
7. Organotin
8. Phthalates
9. Short Chain Chlorinated Paraffins (SCCPs)
10. Total heavy metal
11. Perfluorinated Chemicals (PFCs)

1. Sampling method was according to international standards. For details, please see Appendix A.

2. The sources of incoming water for manufacturing processes were often river or ground water. These sources are different from the sources used for domestic/ drinking uses.

3. List of analytes is included in Appendix B

METHODOLOGY



PUBLIC DISCLOSURE PLATFORM

Institute of Public & Environmental Affairs (IPE)



DATA DISCLOSURE STEP IN IPE

- Factory fill in Detox form provided by IPE
- Filled Detox form was verified by BVCPS before uploading to IPE platform by factory
- All 67 production units had been uploaded the discharge data in IPE platform (<http://www.en.ipe.org.cn/IndustryRecord/Regulatory.aspx>)

FACTORY INVOLVED IN 2016

Factory Location	No. of Factory involved
Bangladesh 	30
Cambodia 	2
China 	22
India 	10
Indonesia 	2
Vietnam 	1

Total : 67



DISCHARGE RESULT ANALYSIS 2016

OVERVIEW - 2016 WATER TEST RESULT



11 chemical groups (193 analytes) were tested at 67 factories

193 analytes } 11 groups



Out of 193 analytes, 35 analytes were found in incoming water samples



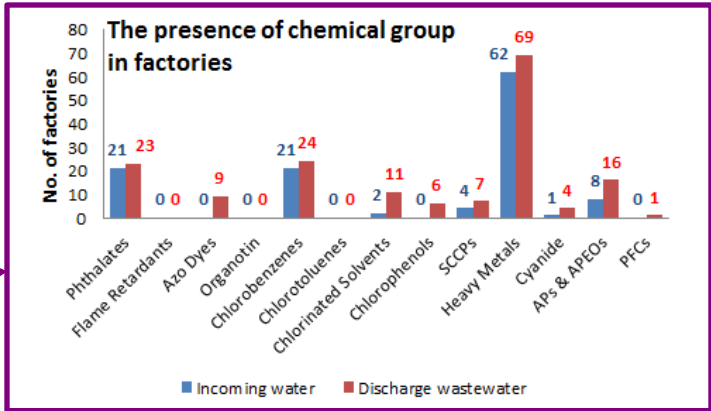
Out of 193 analytes, 51 analytes were found in discharge waste water samples

These 35 analytes belong to 6 chemical groups

These 51 analytes belong to 9 chemical groups

- These 6 groups are :
1. Phthalates
 2. Chlorobenzenes
 3. Chlorinated Solvents
 4. SCCP (C10 - C13)
 5. Total Heavy Metals
 6. AP & APEO

- These 9 groups are :
1. Phthalates
 2. Azo dyes
 3. Chlorobenzenes
 4. Chlorinated Solvents
 5. Chlorophenols
 6. SCCP (C10 - C13)
 7. Total Heavy Metals
 8. AP & APEO
 9. PFCs

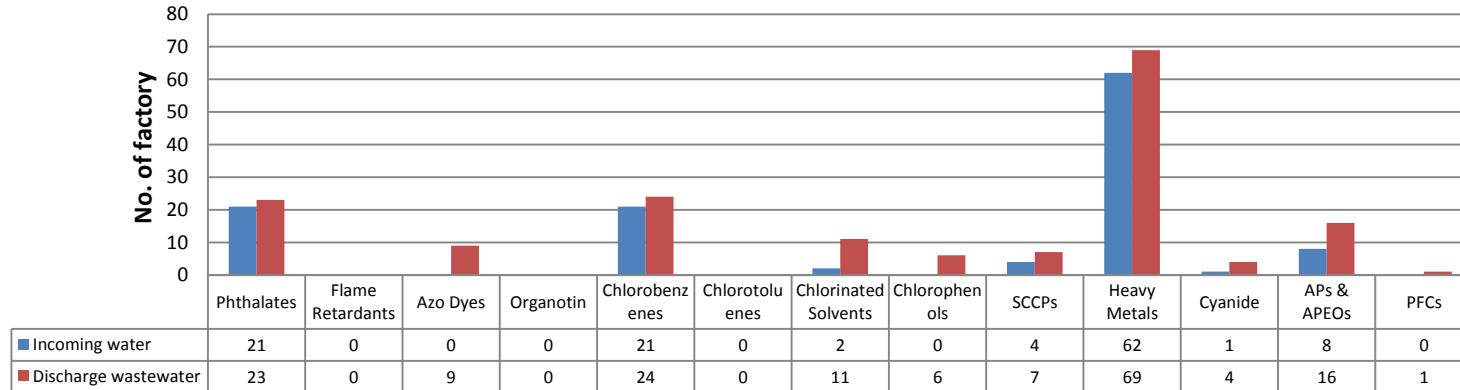


OVERVIEW – 2016 WATER TEST RESULT

In the study, we could see :

- i. 9 chemical groups (51 analytes) out of 11 chemical groups (193 analytes) were detected in discharged waste water sample. 35 analytes out of these 51 analytes were detected also in incoming water samples. This implies that incoming water keeps on as one of the major sources for hazardous chemicals detected in discharged water sample.
- ii. Phthalates, Chlorobenzenes and Heavy Metals were commonly detected in both incoming and waste water samples. These were also the three major chemical groups found in discharged waste water samples.
- iii. Flame retardant, Organotin and Chlorotoluenes were not detected in both incoming and waste water samples.
- iv. Azo dyes, Chlorophenols and PFCs were found in waste water samples only. This implies its actual usage in manufacturing process.

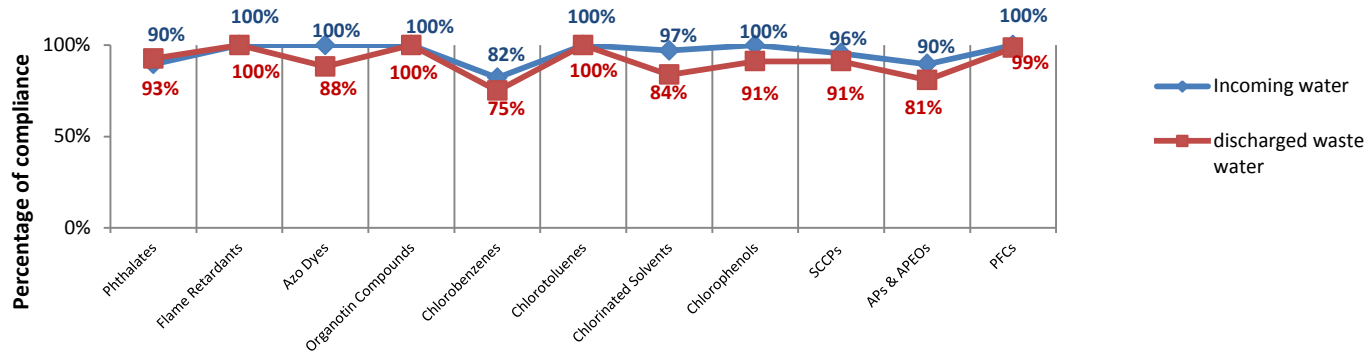
The presence of chemical groups in incoming water and discharged waste water samples



2016 WATER RESULT COMPARISON WITH ZDHC WASTEWATER GUIDELINE

In November 2016, ZDHC group⁴ released a wastewater guideline which includes sets of wastewater parameters, limit values and test method for textile industry⁵. The 2016 water sample results are compared with the limit values in ZDHC wastewater guideline and the compliance level for ZDHC parameters and conventional parameters – Heavy Metal are shown as below.

Compliance level of ZDHC wastewater guideline – ZDHC parameters



From the graph, we could see :

- i. Incoming water is not fully complied with ZDHC wastewater guideline. Among all chemical groups, Phthalates, Chlorobenzenes, Chlorinated Solvents, SCCPs and APs & APEOs are detected in incoming water. It is the challenge for compliance in incoming water since the source itself is polluted already.
- ii. Azo dyes, Chlorophenols and PFCs are the chemical groups which not meet with ZDHC wastewater requirement and proved its usage in production.
- iii. Phthalates is the only chemical group which has higher compliance rate in discharged wastewater than in incoming water.

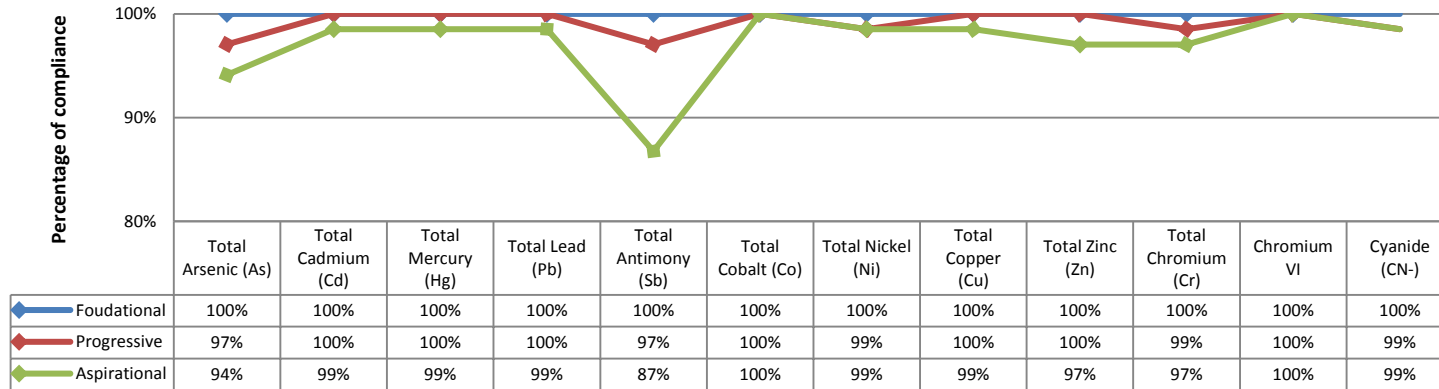


4. For details about ZDHC group (Zero Discharge of Hazardous Chemical) , please visit <http://www.roadmaptozero.com/>

5. ZDHC wastewater guideline is available for public with link : <http://www.roadmaptozero.com/news/post/zdhc-releases-wastewater-guidelines-to-coordinate-industry-efforts-eliminate-hazardous-chemicals/>

2016 WATER RESULT COMPARISON WITH ZDHC WASTEWATER GUIDELINE

Compliance level for ZDHC wastewater guideline - Conventional Parameters on Heavy Metal



The compliance level of conventional parameters – Heavy Metals is shown in above table.

From the result :

- i. All discharged waste water samples meet with the foundational limits in ZDHC wastewater guideline.
- ii. In general, all parameters have a high compliance rate with above 90% except total Antimony.



2016 DISCHARGE WATER RESULT COMPARISON WITH LOCAL LEGISLATION

Table 1 : Comparison of 2016 discharge water result with local legislation

Chemical Analytes	China		India		Cambodia		Vietnam		Indonesia	
	Limit *	Detected **	Limit *	Detected **	Limit *	Detected **	Limit *	Detected **	Limit *	Detected **
Dibutyl phthalate (DBP)	0.200	0.004 #	NA	0.012	NA	ND	NA	ND	NA	ND
Chlorobenzene	0.200	0.002	NA	0.016	NA	ND	NA	ND	NA	0.060
1,2-Dichlorobenzene	0.400	ND	NA	ND	NA	ND	NA	ND	NA	ND
1,3-Dichlorobenzene, 1,4-Dichlorobenzene	0.400	0.000	NA	0.001	NA	ND	NA	ND	NA	ND
Chloroform	0.300	ND	NA	ND	NA	ND	NA	ND	NA	ND
Carbon Tetrachloride	0.030	ND	NA	ND	NA	ND	NA	ND	NA	ND
Trichloroethylene	0.300	ND	NA	ND	NA	ND	NA	ND	NA	ND
Tetrachloroethylene	0.100	ND	NA	ND	NA	ND	NA	ND	NA	ND
Pentachlorophenol	5.000	ND	NA	ND	NA	ND	NA	ND	NA	ND
Total Arsenic (As)	0.500	0.012	0.200	0.016	0.100	0.003	0.050	0.003	NA	ND
Total Cadmium (Cd)	0.100	0.023	2.000	ND	0.100	ND	0.010	0.000	NA	ND
Total Mercury (Hg)	0.050	0.006 #	0.010	ND	NA	0.000	0.010	0.000	NA	ND
Total Lead (Pb)	1.000	0.023 #	0.100	0.010	NA	0.003	0.100	0.004	NA	0.007
Total Nickel (Ni)	1.000	0.024 #	3.000	0.008	NA	ND	0.200	0.003	NA	0.006
Total Copper (Cu)	0.500	0.499	3.000	0.121	NA	0.033	2.000	0.027	NA	0.015
Total Zinc (Zn)	2.000	0.638 #	5.000	0.104	NA	0.156	3.000	0.208	NA	0.588
Total Chromium (Cr)	1.500	0.178 #	2.000	0.028	NA	0.001	NA	0.009	1.000	0.005
Total Manganese	2.000	0.205	2.000	1.577	1.000	0.086	0.500	0.05	NA	0.351
Chromium VI	0.500	ND	0.100	ND	NA	ND	0.050	ND	NA	ND
Cyanide	0.500	0.120	0.200	ND	0.200	ND	0.070	ND	NA	ND

* Refer to appendix C for relevant country legislation

** The value is the highest detected concentration in discharged water samples in each country

Waste water sample was not treated by waste water treatment plant

Unit : parts per million (ppm) ND : Not Detected NA : Not Applicable

The highest detected amount of each analyte in this study was applied for the comparison with local waste water discharged legislation limits.

All obtained results were lower than local legislation in below countries.

- China
- India
- Cambodia
- Vietnam
- Indonesia



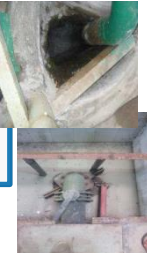
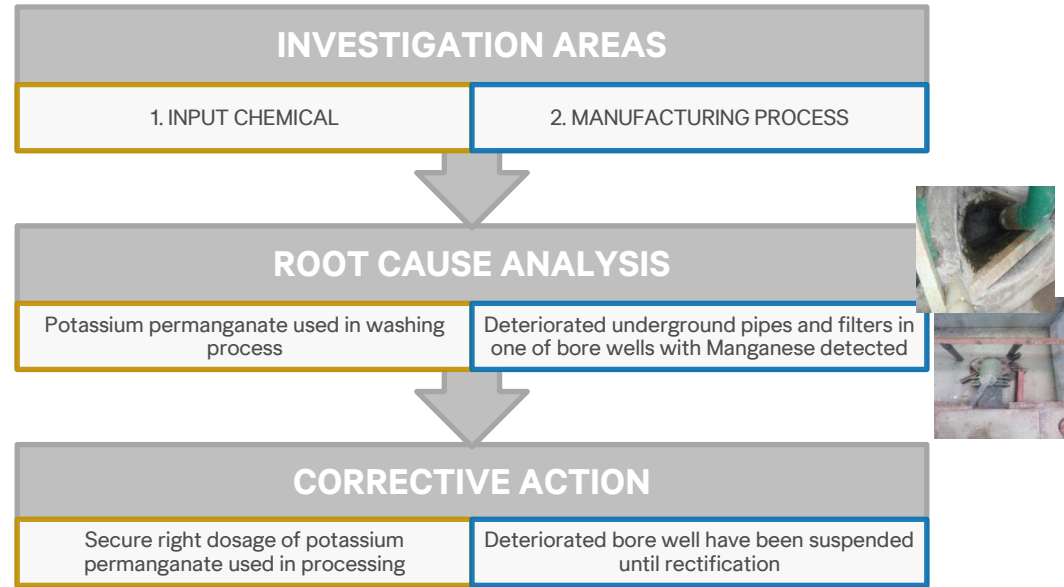
2016 DISCHARGE WATER RESULT COMPARISON WITH LOCAL LEGISLATION

Table 2 : Comparison of 2016 discharge water result with local legislation

Chemical Analytes	Bangladesh	
	Limit *	Detected **
Dibutyl phthalate (DBP)	NA	ND
Chlorobenzene	NA	ND
1,2-Dichlorobenzene	NA	ND
1,3-Dichlorobenzene, 1,4-Dichlorobenzene	NA	ND
Chloroform	NA	31.000
Carbon Tetrachloride	NA	ND
Trichloroethylene	NA	ND
Tetrachloroethylene	NA	ND
Pentachlorophenol	NA	ND
Total Arsenic (As)	0.200	0.009
Total Cadmium (Cd)	0.500	ND
Total Mercury (Hg)	0.010	ND
Total Lead (Pb)	0.100	0.006
Total Nickel (Ni)	1.000	0.115
Total Copper (Cu)	0.500	0.236
Total Zinc (Zn)	5.000	0.301
Total Chromium (Cr)	0.500	0.119
Total Manganese	5.000	5.014
Chromium VI	0.100	ND
Cyanide	0.100	ND

Result :

5.014ppm Manganese was found in one of the waste water samples in Bangladesh study.



* Refer to appendix C for relevant country legislation

**The value is the highest detected concentration in discharged water samples in each country

Unit : parts per million (ppm) ND : Not Detected NA : Not Applicable

OUR ACTION

We care about the global environment and health throughout our value chain. To make it happen, we have to work closely with key players like our suppliers and industry stakeholders. H&M will continue the hard work so as to keep the synergy within the industry.

- Secure the technical competence level in our supply chain
- Use BV E cube system to evaluate supplier's chemical management performance
- Create Best Chemical Management Practice (BCMP) to guide our suppliers to develop good chemical management systems in facility level
- Enhance collaboration with chemical industry to find best available chemicals (Positive lists) to substitute the hazardous chemicals
- Continue support in ZDHC Gateway to provide a standardized platform to share result data in industry level
- Encourage the substitution of hazardous chemicals by promoting and publishing the lists of best available chemicals (Positive Lists) in our supplier portal and company websites
(<http://sustainability.hm.com/en/sustainability/commitments/use-natural-resources-responsibly/chemicals.html>)
- Keep our Manufacturing Restricted Substances List (MRSL) up-to-date in order to ensure the comprehensiveness of the zero-discharge scheme and make the alignment within the industry to reach goal of clean factories
- Enhance our transparency of hazardous chemical discharge by encouraging all wet processing factories to disclose their chemical discharge data in public platforms



APPENDIX

APPENDIX A : STANDARD PROCEDURE FOR ENVIRONMENTAL SAMPLING

1. US EPA Guidelines – Regulatory monitoring and testing Water and wastewater sampling
2. Australia EPA (Victoria) Guideline – Sampling and Analysis of Waters, Wastewaters, Soils and Wastes.
3. ISO 5667-3, 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

APPENDIX B : LIST OF CHEMICAL ANALYTES

No.	Chemical Group	Name of Chemical Analytes	CAS No.
1	Phthalates	Butyl benzyl phthalate (BBP)	85-68-7
2		Dibutyl phthalate (DBP)	84-74-2
3		Di-2-ethylhexyl phthalate (DEHP)	117-81-7
4		Di-n-octyl phthalate (DNOP)	117-84-0
5		Di-iso-nonyl phthalate (DINP)	28553-12-0 & 68515-48-0
6		Di-iso-decyl phthalate (DIDP)	26761-40-0 & 68515-49-1
7		Dimethyl phthalate (DMP)	131-11-3
8		Diethyl phthalate (DEP)	84-66-2
9		Di-n-propyl phthalate (DPRP)	131-16-8
10		Di-iso-butyl phthalate (DIBP)	84-69-5
11		Di-cyclohexyl phthalate (DCHP)	84-61-7
12		Di-n-hexyl phthalate (DnHP)	84-75-3
13		Dinonyl phthalate (DNP)	84-76-4
14		Di-iso-octyl phthalate (DIOP)	27554-26-3
15		Dimethoxyethyl phthalate (DMEP)	117-82-8
16		1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6
17		1,2-Benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters (DHNUP)	68515-42-4
18		Butyl octyl phthalate (BOP)	84-78-6
19		Diundecyl phthalate (DUP)	3648-20-2
20		Bis(2-ethoxyethyl) phthalate (BEEP)	605-54-9
21		Di-iso-pentyl phthalates (DiPP)	605-50-5
22		n-Pentyl iso-pentyl phthalate (PiPP)	776297-69-9
23		Di-n-pentyl phthalate (DnPP)	131-18-0

No.	Chemical Group	Name of Chemical Analytes	CAS No.	
24	Brominated Flame Retardants	Polybromobiphenyls (PBBs)	Various	
25		Tris(2,3-dibromopropyl) phosphate (TRIS)	126-72-7	
26		Polybromodiphenyl ethers (PBDEs)	Various	
27		Tetrabromobisphenol A (TBBPA)	79-94-7	
28		Tetrabromobisphenol A bis(2,3-dibromopropyl ether) (TBBPA-DBPE)	21850-44-2	
29		Bis(2,3-dibromopropyl) phosphate	5412-25-9	
30		Hexabromocyclododecane (HBCDD)	3194-55-6	
31		2,2-Bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0	
32		Chlorinated Flame Retardants	Tris(2-chloroethyl) phosphate (TCEP)	115-96-8
33			Tris(1,3-dichloro-isopropyl) phosphate (TDCP)	13674-87-8
34	Tri(1-chloro-2-propyl) phosphate (TCPP)		13674-84-5	
35	Tris-(aziridiny)-phosphineoxide (TEPA)		545-55-1	
36	Tri-o-cresyl-phosphate		78-30-8	

APPENDIX B : LIST OF CHEMICAL ANALYTES

No.	Chemical Group	Name of Chemical Analytes	CAS No.
37	Aromatic Amines in Azo Colorants	4-Aminodiphenyl	92-67-1
38		Benzidine	92-87-5
39		4-Chloro-o-toluidine	95-69-2
40		2-Naphthylamine	91-59-8
41		o-Aminoazotoluene	97-56-3
42		5-nitro-o-toluidine	99-55-8
43		4-Chloroaniline	106-47-8
44		4-Methoxy-m-phenylenediamine	615-05-4
45		4,4'-Diaminodiphenylmethane	101-77-9
46		3,3'-Dichlorobenzidine	91-94-1
47		3,3'-Dimethoxybenzidine	119-90-4
48		3,3'-Dimethylbenzidine	119-93-7
49		4,4'-Methylenedi-o-toluidine	838-88-0
50		p-Cresidine	120-71-8
51		4,4'-Methylene-bis-(2-chloroaniline)	101-14-4
52		4,4'-Oxydianiline	101-80-4
53		4,4'-Thiodianiline	139-65-1
54		o-Toluidine	95-53-4
55		4-Methyl-m-phenylenediamine	95-80-7
56		2,4,5-Trimethylaniline	137-17-7
57		o-Anisidine	90-04-0
58		4-Aminoazobenzene	60-09-3
59		2,4-Xylidine	95-68-1
60		2,6-Xylidine	87-62-7
61		Aniline	62-53-3
62		1,4-Phenylenediamine	106-50-3
63		2-Chloroaniline	95-51-2
64		5-Nitro-o-anisidine	99-59-2

No.	Chemical Group	Name of Chemical Analytes	CAS No.
65	Aromatic Amines in Azo Colorants	m-Toluidine	108-44-1
66		N,N-Diethylaniline	91-66-7
67		N-Ethylaniline	103-69-5
68		N-Methylaniline	100-61-8
69		p-Toluidine	106-49-0
70	Organotin Compounds	Monobutyltin (MBT)	Various
71		Dibutyltin (DBT)/ Dibutyltin chloride (DBTC)	Various
72		Diocetyl tin (DOT)	Various
73		Tributyltin (TBT)/ Bis(Tributyltin) oxide (TBTO)	Various
74		Triphenyltin (TPHT)	Various
75		Tricyclohexyltin (TCyHT)	Various
76		Triocetyl tin (TOT)	Various
77		Tripropyltin (TPT)	Various
78		Tetrabutyltin (TeBT)	1461-25-2
79		Monooctyltin (MOT)	Various
80		Diphenyltin (DPhT)	Various
81		Dimethyltin (DMeT)	Various
82		Trimethyltin (TMeT)	Various
83		Chlorobenzenes	Chlorobenzene
84	1,2-Dichlorobenzene		95-50-1
85	1,3-Dichlorobenzene, 1,4-Dichlorobenzene		541-73-1, 106-46-7
86	1,2,3-Trichlorobenzene		87-61-6
87	1,2,4-Trichlorobenzene		120-82-1
88	1,3,5-Trichlorobenzene		108-70-3
89	1,2,3,4-Tetrachlorobenzene	634-66-2	

APPENDIX B : LIST OF CHEMICAL ANALYTES

No.	Chemical Group	Name of Chemical Analytes	CAS No.
90	Chlorobenzenes	1,2,3,5-Tetrachlorobenzene,	634-90-2,
		1,2,4,5-Tetrachlorobenzene	95-94-3
91		Pentachlorobenzene	608-93-5
92		Hexachlorobenzene	118-74-1
93	Chlorotoluenes	2-Chlorotoluene,	95-49-8,
		3-Chlorotoluene,	108-41-8,
		4-Chlorotoluene	106-43-4
94			2,3-Dichlorotoluene,
		3,4-Dichlorotoluene	95-75-0
95		2,4-Dichlorotoluene,	95-73-8,
		2,5-Dichlorotoluene,	19398-61-9,
		2,6-Dichlorotoluene	118-69-4
96		2,3,6-Trichlorotoluene	2077-46-5
97		2,4,5-Trichlorotoluene	6639-30-1
98		Benzotrichloride	98-07-7
99		alpha,2,6-trichlorotoluene	2014-83-7
100		alpha,2,4-trichlorotoluene	94-99-5
101		alpha,3,4-trichlorotoluene	102-47-6
102		alpha,alpha,alpha-2-Tetrachlorotoluene	2136-89-2
103		alpha,alpha,alpha-4-Tetrachlorotoluene	5216-25-1
104		alpha,alpha,2-6-Tetrachlorotoluene	81-19-6
105		Pentachlorotoluene	877-11-2

No.	Chemical Group	Name of Chemical Analytes	CAS No.
106	Chlorinated Solvents	1,2-Dichloroethane	107-06-2
107		1,1-Dichloroethylene	75-35-4
108		Methylene Chloride	75-09-2
109		cis-1,2-Dichloroethylene	156-59-2
110		trans-1,2-Dichloroethylene	156-60-5
111		Chloroform	67-66-3
112		1,1,1-Trichloroethane	71-55-6
113		Carbon Tetrachloride	56-23-5
114		Trichloroethylene	79-01-6
115		1,1,2-Trichloroethane	79-00-5
116		1,1,1,2-Tetrachloroethane	630-20-6
117	Tetrachloroethylene	127-18-4	
118	1,1-Dichloroethane	75-34-3	
119	1,1,2,2-Tetrachloroethane	79-34-5	
120	Chlorophenols	Pentachlorophenol	87-86-5
121		2,3,4,5-Tetrachlorophenol	4901-51-3
122		2,3,4,6-Tetrachlorophenol	58-90-2
123		2,3,5,6-Tetrachlorophenol	935-95-5
124		2,4,6-Trichlorophenol	88-06-2
125		2,3,5-Trichlorophenol	933-78-8
126		2,4,5-Trichlorophenol	95-95-4
127		3,4,5-Trichlorophenol	609-19-8
128		2,3,4-Trichlorophenol	15950-66-0
129		2,3,6-Trichlorophenol	933-75-5

APPENDIX B : LIST OF CHEMICAL ANALYTES

No.	Chemical Group	Name of Chemical Analytes	CAS No.
130	Chlorophenols	2,3-Dichlorophenol	576-24-9
131		3,4-Dichlorophenol	95-77-2
132		2,4-Dichlorophenol	120-83-2
133		2,5-Dichlorophenol	583-78-8
134		2,6-Dichlorophenol	87-65-0
135		3,5-Dichlorophenol	591-35-5
136		2-Chlorophenol	95-57-8
137		3-Chlorophenol	108-43-0
138		4-Chlorophenol	106-48-9
139		o-Phenylphenol	90-43-7
140		4-Chloro-3-methylphenol	59-50-7
141	Short Chain Chlorinated Paraffins	Short Chain Chlorinated Paraffins	85535-84-8
142	Heavy Metals	Arsenic (As)	Various
143		Cadmium (Cd)	
144		Mercury (Hg)	
145		Lead (Pb)	
146		Antimony (Sb)	
147		Cobalt (Co)	
148		Nickel (Ni)	
149		Copper (Cu)	
150		Zinc (Zn)	
151		Chromium (Cr)	
152		Manganese (Mn)	
153		Chromium VI	
154		Cyanide (CN-)	

No.	Chemical Group	Name of Chemical Analytes	CAS No.
155	Alkylphenols & Alkylphenol Ethoxylates	Octylphenol (OP)	Various
156		Nonylphenol (NP)	
157		Octylphenol monoethoxylates (OP1EO)	51437-89-9
158		Octylphenoethoxylates (OPEOs)	Various
159		Nonylphenol monoethoxylates (NP1EO)	104-35-8
160		Nonylphenoethoxylates (NPEOs)	Various
161	Perfluorinated Chemicals	Perfluorobutanesulfonic acid (PFBS)	375-73-5, 29420-49-3, 59933-66-3
162		Perfluorohexanesulfonic acid (PFHxS)	355-46-4, 3871-99-6
163		Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8, 60270-55-5
164		Perfluorooctanesulfonic acid (PFOS)	1763-23-1, 56773-72-3, 307-35-7
165		Perfluorodecane sulfonic acid (PFDS)	335-77-3, 126105-34-8
166		Perfluorooctane Sulfonamide (PFOSA)	754-91-6
167		Perfluorobutyric Acid (PFBA)	375-22-4
168		Perfluoropentanoic Acid (PFPA)	2706-90-3
169		Perfluoro-n-hexanoic acid (PFHxA)	307-24-4
170		Perfluoro-n-heptanoic acid (PFHpA)	375-85-9
171	Perfluoro-n-octanoic acid (PFOA)	335-67-1	

APPENDIX B : LIST OF CHEMICAL ANALYTES

No.	Chemical Group	Name of Chemical Analytes	CAS No.
172	Perfluorinated Chemicals	Perfluoro-n-nonanoic acid (PFNA)	375-95-1
173		Perfluoro-n-decanoic acid (PFDA)	335-76-2
174		Perfluoroundecanoic Acid (PFUnA)	2058-94-8, 4234-23-5
175		Perfluorododecanoic Acid (PFDoA)	307-55-1
176		Perfluorotridecanoic Acid (PFTrA)	72629-94-8
177		Perfluorotetradecanoic Acid (PFTeA)	376-06-7
178		Perfluoro-3,7-dimethyloctanoic acid (PF-3,7-DMOA)	172155-07-6
179		7H-Perfluoroheptanoic acid (HPFHpA)	1546-95-8
180		2H,2H-Perfluorodecanoic acid (H2PFDA)	-
181		2H,2H,3H,3H-Perfluoroundecanoic acid (PFUnA)	34598-33-9
182		1H,1H,2H,2H-Perfluorooctylacrylate (FTA 6-2)	17527-29-6
183		1H,1H,2H,2H-Perfluorodecylacrylate (FTA 8-2)	27905-45-9
184		1H,1H,2H,2H-Perfluorododecylacrylate (FTA 10-2)	17741-60-5
185		2-Perfluorobutylethanol (FTOH 4-2)	2043-47-2
186	2-Perfluorohexylethanol (FTOH 6-2)	647-42-7	
187	2-Perfluorooctylethanol (FTOH 8-2)	678-39-7	

No.	Chemical Group	Name of Chemical Analytes	CAS No.
188	Perfluorinated Chemicals	2-Perfluorodecylethanol (FTOH 10-2)	865-86-1
189		2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	24448-09-7
190		2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)	1691-99-2
191		N-Methylperfluoro-1-octanesulfonamide (N-MeFOSA)	31506-32-8
192		N-Ethylperfluoro-1-octanesulfonamide (N-EtFOSA)	4151-50-2
193		1H,1H,2H,2H-Perfluorooctanesulphonic acid (H4PFOS 6-2)	27619-97-2

APPENDIX C : REFERENCES

1. *Discharge standards of water pollutant for dyeing and finishing of textile industry, GB 4287-2012*
2. *Integrated wastewater discharge standard, GB 8978-1996*
3. *The Environment Conservation Rules, 1997*
4. *The Environment (Protection) Rules, 1986*
5. *Industrial waste water - Discharge standards, TCVN 5945:2005*
6. *Cambodia SUB-DECREE on WATER POLLUTION CONTROL-1999*
7. *Indonesia PERGUB DKI 69-2013*