

G-STAR RAW

WATER DISCHARGE REPORT II
PART OF THE G-STAR ZERO DISCHARGE OF HAZARDOUS CHEMICALS COMMITMENT

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1. INTRODUCTION

G-Star is committed to eliminate industrial releases of hazardous chemicals into the environment, and set the target to reach zero discharge of hazardous chemicals (ZDHC) from all our products and production processes by 2020.

G-Star has taken several steps to reach this target as outlined below.

The basis of our Responsible Supply Chain policy is the G-Star Supplier Code of Conduct (CoC) that clarifies and elevates the expectations we have of suppliers we work with and lays down the minimum Social and Environmental, Health & Safety (EHS) standards we expect each factory to meet.

The CoC refers to the G-Star Restricted Substances List (RSL) that is the basis for monitoring the use of chemicals in G-Star products, and follows strict national and international laws. We do not allow the use of chemicals in our products that can have a harmful effect on health or the environment. Our Textile Engineers and Chemical Specialists work together with suppliers on proper use of chemicals and compliance with the RSL. To check compliance of our products with the RSL, we perform risk assessments, auditing and testing of our products.

Secondly, cooperation across the entire industry is essential. Therefore, G-Star has taken the initiative to collaboratively work with a large number of world leading brands towards zero discharge of hazardous chemicals by 2020. This so called ZDHC Joint Roadmap Group has set specific actions and timelines to realise this shared commitment and to set the right standard of environmental performance for the global apparel and footwear industry. G-Star supports and puts effort in the group's activities to collectively find safe substitutions for hazardous chemicals used in the apparel industry and work towards zero discharge of hazardous chemicals by 2020. More information can be found on the [ZDHC Joint Roadmap website](#).

At the same time, we have published our individual action plan that lists all measures and actions necessary to reach our ZDHC commitment. The progress G-Star makes is published each year in a [progress report](#).

In addition, we are a system partner of [bluesign technologies ag](#). We are committed to implement their bluesign® standard in our supply chain. This is an independent standard that guarantees that products are free of hazardous chemicals. By joining bluesign technologies ag we support our environmental goals and encourage suppliers in our entire textile production chain, from raw materials to textile manufacturers, to come to a healthy, safe and environmentally friendly production process.

G-STAR WATER DISCHARGE REPORT II

In August 2013, G-Star published the G-Star Water Discharge Report I. This report described the results of water tests executed at our Global South suppliers accounting together for a minimum of 25% of our global production. Now, in December 2013, we have published the G-Star Water Discharge Report II showing the water discharge data of our suppliers accounting for 80% of our global production. The results of these reports allow us to obtain an understanding of the use and discharge of the 11 priority chemicals during production and form a baseline assessment of the presence of the 11 priority chemicals in our supply chain.

For this second report, Bureau Veritas CPS collected and tested water samples on the presence of the following 11 priority chemical groups:

1. Alkylphenols
2. Phthalates
3. Brominated and chlorinated flame retardants
4. Azo dyes
5. Organotin compounds
6. Perfluorinated chemicals
7. Chlorobenzenes
8. Chlorinated solvents
9. Chlorophenols
10. Short chain chlorinated paraffins
11. Heavy metals

The goals of the research of which the results are shown in this report are the following:

1. Do a baseline assessment of the quality of the water discharged by the factories where G-Star products or fabrics are produced.
2. Identify whether analytes from the 11 priority chemical classes are present in the water discharges at supplier locations and at what level.
3. Better insight in the chemical use in the production process at the factories and possible interrelation with chemicals after treatment of the water.
4. Formulate, prioritise and coordinate follow up activities with suppliers to reach our target.
5. To work towards zero discharge of hazardous chemicals by 2020.

As G-Star and all suppliers included in this report acknowledge the 'right to know principle', we encourage and support our suppliers to publicly disclose the water discharge data. The majority of our Chinese suppliers that are included in the baseline assessment agreed to disclose the water discharge data on the website of the Chinese Institute of Public & Environmental Affairs (IPE), a Pollutant Release and Transfer Register (PRTR) platform in China. Where our suppliers decided not to publicly disclose via the IPE website, we will continue to encourage and support them to do so.

To view the results of the water tests we refer to the following locations:

- For the discharge data of the factories in China please go to the [IPE discharge platform website](#).
- For all other factory discharge data we refer to Appendix I of this report.

2. FACTORY INFORMATION

For this report G-Star selected suppliers from China, Bangladesh, Vietnam and India. Together with the suppliers selected for the Water Discharge Report I, these suppliers account for a minimum of 80% of our global production volume. In this chapter both the type of the factory and the business relationship with G-Star are explained.

The test results of our water tests can be either found on IPE or in Appendix I of this report. In line with the 'right to know principle', some Chinese factories publicly disclosed the discharge data on the [IPE discharge platform website](#). Other Chinese suppliers are currently not disclosing the water discharge data on the IPE website. G-Star will continue the dialogue with these suppliers in this regard. The reports of these suppliers can be found in Appendix I of this report. Up till now there is no proper platform for disclosure of discharge data available that is known and used by communities in Bangladesh, Vietnam and India. Disclosing single test results outside of a proper framework is inadequate. Both G-Star and the suppliers are pushing for a functioning and known PRTR platform for these countries. As soon as a proper platform for disclosure is available, the dialogue on disclosure of water discharge data will be continued. Until that time, the water test results of all suppliers from Bangladesh, Vietnam and India are disclosed via Appendix I of this report.

G-Star does not publicly share its supplier details because this is competitively-sensitive information. Therefore, the names of the suppliers are anonymised in this report. For reference we numbered the factories and indicated the country of production in line with the annotation of the Waste Discharge Report I. In the first report we shared the discharge results of five Chinese factories (coded: Factory 1-5 China) and one Indian factory (coded: Factory 1 India). In this report we share the results of Chinese Factory 6–9, Vietnam 1, Bangladesh 1-5 and India 2. Below the suppliers and the relationship to G-Star is explained.

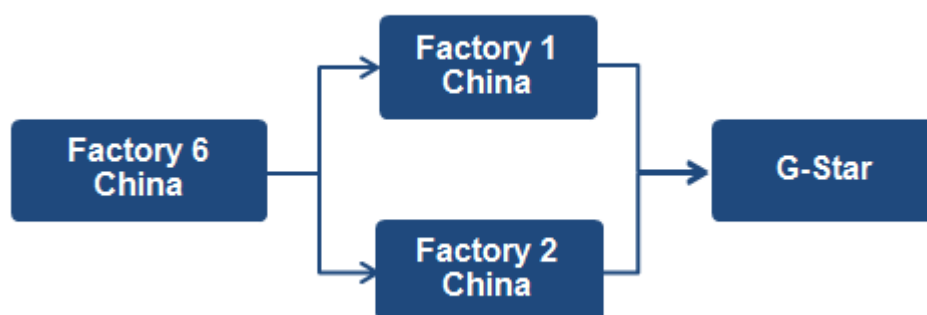
FACTORY 6 CHINA

Sector: Textile

Subsector: Mill

The factory is located in Hangzhou Province in China. It is specialised in fabric making. The main processes are warping, sizing, beaming, weaving, dyeing and finishing. The factory is located in an industrial zone and shares the effluent treatment plant with other companies.

The relationship between G-Star and the factory is depicted below:



FACTORY 7 CHINA

Sector: Apparel

Subsector: Washing

The factory is located in Guangdong Province in China. It is specialised in the washing of garments. The main processes are garment washing and garment dyeing. The factory has its own effluent treatment plant.

The relationship between G-Star and the factory is depicted below:



FACTORY 8 CHINA

Sector: Textile
Subsector: Mill

The factory is located in Guangdong Province in China. It is specialised in fabric making. The main processes are knitting, dyeing and finishing. The factory has its own effluent treatment plant.

The relationship between G-Star and the factory is depicted below:

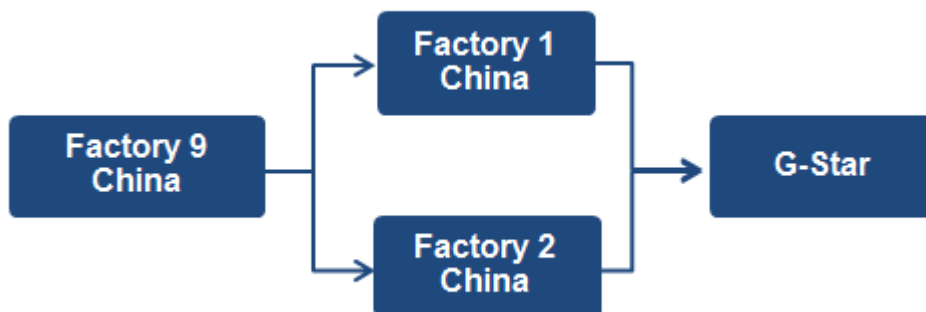


FACTORY 9 CHINA

Sector: Textile
Subsector: Mill

The factory is located in Jiangsu Province in China. It is specialised in fabric making. The main processes are spinning, weaving and dyeing. The factory is located in an industrial zone and shares an effluent treatment plant with other companies.

The relationship between G-Star and the factory is depicted below:



FACTORY 1 BANGLADESH

Sector: Apparel
Subsector: Multiple processes

The factory is located in the Dhaka division in Bangladesh. It is a vertically integrated supplier. The main processes are spinning, yarn dyeing, knitting, fabric dyeing, fabric finishing, cutting, printing, embroidery, sewing, washing, finishing and packaging. The factory has its own effluent treatment plant.

The relationship between G-Star and the factory is depicted below:



FACTORY 2 BANGLADESH

Sector: Apparel

Subsector: Multiple processes

The factory is located in the Dhaka division in Bangladesh. It is a vertically integrated supplier. The main processes are fabric dyeing, fabric finishing, cutting, sewing, finishing, dyeing, laundry, embroidery and printing. The factory has its own effluent treatment plant.

The relationship between G-Star and the factory is depicted below:



FACTORY 3 BANGLADESH

Sector: Apparel

Subsector: Washing and finishing

The factory is located in the Dhaka division in Bangladesh. It is specialised in the washing of garments. The main processes are spinning, knitting, fabric dyeing, printing, cutting, sewing finishing, dyeing, laundry and printing. The factory has its own effluent treatment plant.

The relationship between G-Star and the factory is depicted below:



FACTORY 4 BANGLADESH

Sector: Apparel

Subsector: Multiple processes

The factory is located in the Dhaka division in Bangladesh. It is a vertically integrated supplier. The main processes are knitting, fabric dyeing, cutting, embroidery, sewing, finishing, dyeing, laundry and printing. The factory has its own effluent treatment plant.

The relationship between G-Star and the factory is depicted below:



FACTORY 5 BANGLADESH

Sector: Apparel

Subsector: Multiple processes

The factory is located in the Chittagong division in Bangladesh. It is a CMT supplier. The main processes are cutting, sewing, laundry and finishing. The factory is located in an industrial zone and shares an effluent treatment plant with other companies.

The relationship between G-Star and the factory is depicted below:



FACTORY 1 VIETNAM

Sector: Apparel

Subsector: Multiple processes

The factory is located in Dong Nai Province in Vietnam. It is a CMT supplier. The main processes are sewing, printing, finishing, laundry. The factory makes use of a closed water system therefore no water is released into the environment after usage. Fresh water is added when necessary.

The relationship between G-Star and the factory is depicted below:



FACTORY 2 INDIA

Sector: Textile

Subsector: Dyeing

The factory is located in Gurajat State in India. It is specialised in fabric making. The main processes are yarn dyeing, warping, sizing, weaving and fabric processing. The factory has its own effluent treatment plant.

The relationship between G-Star and the factory is depicted below:



3. METHOD¹

LABORATORY SELECTION

For the second batch of water sampling and testing as described in this report G-Star chose Bureau Veritas CPS (hereafter BV) as service provider. G-Star selects service providers among other factors on the basis of their quality, capabilities, experience, reputation and laboratory presence.

BV is a global leader in the conformity assessment industry of consumer products and its supply chains. Their service portfolio includes testing, inspection, audit, consultation and certification relating to consumer products. They have over 70 laboratories and over 10,000 staff located in Asia, Europe, Central Africa, and Americas. For more information we refer to the [BV website](#).

Since the samples were taken from factories in China, Bangladesh, Vietnam and India several offices were involved in the sample collection and testing, namely Bureau Veritas Consumer Products Services (Shanghai), Bureau Veritas Consumer Products Services (Guangzhou), Bureau Veritas Consumer Products Services (BD) Ltd. L, Bureau Veritas Consumer Products Services Vietnam Ltd. L and Bureau Veritas Consumer Products Services (I) Pvt. Ltd. L.

SAMPLING METHOD

BV collected composite samples of wastewater before treatment and waste water after treatment from the selected factory sites. A composite sample is a combination of a series of grab samples taken at specific time intervals. Composite samples represent the water stream over a period of time more accurately and are reflective of the daily condition of the factory as long as the factory and the treatment plant are operating normally when samples are taken. In some cases the incoming water was also tested. In most cases the samples were collected between 2 and 5 pm.

In the table below the sample and the sampling point are indicated.

| No. of sample | Sample | Location of sampling point |
|---------------|---|---|
| 1 | Incoming water | Water source or water tank to feed into the factory |
| 1 | Wastewater before treatment | Wastewater after going through the sieve removing large debris before treatment |
| 1 | Wastewater after treatment (water at discharge point) | Wastewater pipe to discharge the effluent |

The factories were instructed to ensure normal operations on the sampling day in order for the sample to reflect the general daily conditions of the factory's discharges and ensure that the wastewater treatment plant worked properly.

TESTING METHOD AND DETECTION LIMITS

As per our public commitment towards Zero Discharge of Hazardous Chemicals, G-Star requested to test the samples to the limits of current technology². Bureau Veritas has guaranteed that the testing reports represent the lowest detection limit of each lab capacity at this moment. The labs will further develop to reach lower detection limit as part of continuous improvement.

Please see the table below for a list of the tested chemicals, the detection limits and test methods.

| List of Phthalates : | | | |
|----------------------|---|-----------------|------|
| No. | Test Method | Reporting Limit | Unit |
| 1 | With reference to U. S. EPA 8270D. (For Wastewater) | Each: 0.001 | Ppm |

¹ All information of this chapter is provided by Bureau Veritas.

² Please see the table below column *reporting limit and Unit* for the detection limit per substance.

| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
|-----|----------------------------------|-------------------------|-----|---------------------------------|------------|
| 1 | Butyl benzyl phthalate (BBP) | 85-68-7 | 9 | Di-n-propyl phthalate (DPRP) | 131-16-8 |
| 2 | Dibutyl phthalate (DBP) | 84-74-2 | 10 | Di-iso-butyl phthalate (DIBP) | 84-69-5 |
| 3 | Di-2-ethylhexyl phthalate (DEHP) | 117-81-7 | 11 | Di-cyclohexyl phthalate (DCHP) | 84-61-7 |
| 4 | Di-n-octyl phthalate (DNOP) | 117-84-0 | 12 | Di-n-hexyl phthalate (DnHP) | 84-75-3 |
| 5 | Di-iso-nonyl phthalate (DINP) | 28553-12-0 & 68515-48-0 | 13 | Dinonyl phthalate (DNP) | 84-76-4 |
| 6 | Di-iso-decyl phthalate (DIDP) | 26761-40-0 & 68515-49-1 | 14 | Di-iso-octyl phthalate (DIOP) | 27554-26-3 |
| 7 | Dimethyl phthalate (DMP) | 131-11-3 | 15 | Dimethoxyethyl phthalate (DMEP) | 117-82-8 |
| 8 | Diethyl phthalate (DEP) | 84-66-2 | - | - | - |

List of Brominated Flame Retardants :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|---|--|-----|---|-----------|
| 1 | With reference to U. S. EPA 527 and with reference to U. S. EPA 8321B. (For Wastewater) | Each (PBBs & PBDEs): 0.00005; Each (TRIS, TBBPA & HBCCD): 0.0005; Each (Others): 0.025 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Polybromobiphenyls (PBBs) | Various | 5 | Bis(2,3-dibromopropyl) phosphate | 5412-25-9 |
| 2 | Tris(2,3-dibromopropyl) phosphate (TRIS) | 126-72-7 | 6 | Hexabromocyclododecane (HBCDD) | 3194-55-6 |
| 3 | Polybromodiphenyl ethers (PBDEs) | Various | 7 | 2,2-Bis(bromomethyl)-1,3-propanediol (BBMP) | 3296-90-0 |
| 4 | Tetrabromobisphenol A (TBBPA) | 79-94-7 | - | - | - |

List of Chlorinated Flame Retardants :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|---|-----------------------------|-----|---|------------|
| 1 | With reference to U. S. EPA 527 and with reference to U. S. EPA 8321B. (For Wastewater) | TCEP: 0.00005; TDCP: 0.0005 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Tris(2-chloroethyl) phosphate (TCEP) | 115-96-8 | 2 | Tris(1,3-dichloro-isopropyl) phosphate (TDCP) | 13674-87-8 |

List of Aromatic Amines in Azo Colorants :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|---|-----------------|-----|---|----------|
| 1 | With reference to German Standard DIN 38407-16, with reference to European Standard EN 14362-1 incorporating Corrigendum and with reference to European Standard EN 14362-3. (For Wastewater) | Each: 0.0001 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | 4-Aminodiphenyl (Biphenyl-4-ylamine or Xenylamine) | 92-67-1 | 14 | p-Cresidine (6-Methoxy-m-toluidine) | 120-71-8 |
| 2 | Benzidine | 92-87-5 | 15 | 4,4'-Methylene-bis-(2-chloroaniline) (2,2'-Dichloro-4,4'-methylene-dianiline) | 101-14-4 |
| 3 | 4-Chloro-o-toluidine | 95-69-2 | 16 | 4,4'-Oxydianiline | 101-80-4 |
| 4 | 2-Naphthylamine | 91-59-8 | 17 | 4,4'-Thiodianiline | 139-65-1 |
| 5 | o-Aminoazotoluene (4-Amino-2',3-dimethylazobenzene or 4-o-tolyazo-o-toluidine) | 97-56-3 | 18 | o-Toluidine (2-Aminotoluene) | 95-53-4 |
| 6 | 5-nitro-o-toluidine (2-Amino-4-nitrotoluene) | 99-55-8 | 19 | 4-Methyl-m-phenylenediamine (2,4-Toluenediamine) | 95-80-7 |
| 7 | 4-Chloroaniline (p-Chloroaniline) | 106-47-8 | 20 | 2,4,5-Trimethylaniline | 137-17-7 |

| | | | | | |
|----|--|----------|----|---------------------------------------|---------|
| 8 | 4-Methoxy-m-phenylenediamine (2,4-Diaminoanisole) | 615-05-4 | 21 | o-Anisidine (2-Methoxyaniline) | 90-04-0 |
| 9 | 4,4'-Diaminodiphenylmethane (4,4'-Methylenedianiline) | 101-77-9 | 22 | 4-Aminoazobenzene (p-Aminoazobenzene) | 60-09-3 |
| 10 | 3,3'-Dichlorobenzidine (3,3'-Dichlorobiphenyl-4,4'-ylenediamine) | 91-94-1 | 23 | 2,4-Xylydine (2,4-dimethylaniline) | 95-68-1 |
| 11 | 3,3'-Dimethoxybenzidine (o-Dianisidine) | 119-90-4 | 24 | 2,6-Xylydine (2,6-dimethylaniline) | 87-62-7 |
| 12 | 3,3'-Dimethylbenzidine (4,4'-Bi-o-tolidine) | 119-93-7 | 25 | Aniline | 62-53-3 |
| 13 | 4,4'-Methylenedi-o-toluidine (3,3'-Dimethyl-4,4'-diaminodiphenylmethane) | 838-88-0 | - | - | - |

List of Organotin Compounds :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|--|-----------------|-----|--------------------------|---------|
| 1 | With reference to European Standard EN ISO 17353. (For Wastewater) | Each: 0.00001 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Monobutyltin (MBT) | Various | 5 | Triphenyltin (TPhT) | Various |
| 2 | Dibutyltin (DBT) | | 6 | Tricyclohexyltin (TCyHT) | |
| 3 | Diocetyl tin (DOT) | | 7 | Triocetyl tin (TOT) | |
| 4 | Tributyltin (TBT) | | 8 | Tripopyltin (TPT) | |

List of Chlorobenzenes :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|---|--------------------|-----|--|-------------------|
| 1 | With reference to U. S. EPA 8260B and with reference to U. S. EPA 8270D. (For Wastewater) | Each: 0.00002 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Chlorobenzene | 108-90-7 | 6 | 1,3,5-Trichlorobenzene | 108-70-3 |
| 2 | 1,2-Dichlorobenzene | 95-50-1 | 7 | 1,2,3,4-Tetrachlorobenzene | 634-66-2 |
| 3 | 1,3-Dichlorobenzene, 1,4-Dichlorobenzene | 541-73-1, 106-46-7 | 8 | 1,2,3,5-Tetrachlorobenzene, 1,2,4,5-Tetrachlorobenzene | 634-90-2, 95-94-3 |
| 4 | 1,2,3-Trichlorobenzene | 87-61-6 | 9 | Pentachlorobenzene | 608-93-5 |
| 5 | 1,2,4-Trichlorobenzene | 120-82-1 | 10 | Hexachlorobenzene | 118-74-1 |

List of Chlorinated Solvents :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|---|-----------------|-----|---------------------------|----------|
| 1 | With reference to U. S. EPA 8260B. (For Wastewater) | Each: 0.1 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | 1,2-Dichloroethane | 107-06-2 | 7 | 1,1,1-Trichloroethane | 71-55-6 |
| 2 | 1,1-Dichloroethylene | 75-35-4 | 8 | Carbon Tetrachloride | 56-23-5 |
| 3 | Methylene Chloride | 75-09-2 | 9 | Trichloroethylene | 79-01-6 |
| 4 | cis-1,2-Dichloroethylene | 156-59-2 | 10 | 1,1,2-Trichloroethane | 79-00-5 |
| 5 | trans-1,2-Dichloroethylene | 156-60-5 | 11 | 1,1,1,2-Tetrachloroethane | 630-20-6 |
| 6 | Chloroform | 67-66-3 | 12 | Tetrachloroethylene | 127-18-4 |

List of Chlorophenols :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|---|-----------------|-----|--|----------------------|
| 1 | With reference to U. S. EPA 8270D. (For Wastewater) | Each: 0.0005 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Pentachlorophenol | 87-86-5 | 8 | 3,4,5-Trichlorophenol, 2,3,4-Trichlorophenol | 609-19-8, 15950-66-0 |
| 2 | 2,3,4,5-Tetrachlorophenol | 4901-51-3 | 9 | 2,3-Dichlorophenol | 576-24-9 |
| 3 | 2,3,4,6-Tetrachlorophenol | 58-90-2 | 10 | 3,4-Dichlorophenol | 95-77-2 |

| | | | | | |
|---|---------------------------|----------|----|---|--|
| 4 | 2,3,5,6-Tetrachlorophenol | 935-95-5 | 11 | 2,4-Dichlorophenol, 2,5-Dichlorophenol, 2,6-Dichlorophenol, 3,5-Dichlorophenol | 120-83-2, 583-78-8, 87-65-0, 591-35-5 |
| 5 | 2,4,6-Trichlorophenol | 88-06-2 | 12 | 2-Chlorophenol | 95-57-8 |
| 6 | 2,3,5-Trichlorophenol | 933-78-8 | 13 | 3-Chlorophenol | 108-43-0 |
| 7 | 2,4,5-Trichlorophenol | 95-95-4 | 14 | 4-Chlorophenol | 106-48-9 |

List of Short Chain Chlorinated Paraffins :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|--|-----------------|-----|------------------|---------|
| 1 | With reference to International Standard ISO 12010. (For Wastewater) | 0.0004 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Short Chain Chlorinated Paraffins | 85535-84-8 | - | - | - |

List of Heavy Metals :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|--|--|-----|---------------------|---------|
| 1 | With reference to U. S. EPA 3015A and with reference to U. S. EPA 6020A./ With reference to U. S. EPA 7196A./ With reference to APHA 4500 CN- C:2012 & APHA 4500 CN- E:2012 (For Wastewater) | Cd: 0.0001; Hg: 0.00005; CN: 0.02 Each (Others): 0.001 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Arsenic (As) | Various | 8 | Copper (Cu) | Various |
| 2 | Cadmium (Cd) | | 9 | Zinc (Zn) | |
| 3 | Mercury (Hg) | | 10 | Chromium (Cr) | |
| 4 | Lead (Pb) | | 11 | Manganese (Mn) | |
| 5 | Antimony (Sb) | | 12 | Chromium VI (Cr VI) | |
| 6 | Cobalt (Co) | | 13 | Cyanide (CN) | |
| 7 | Nickel (Ni) | | - | - | |

List of Alkylphenols & Alkylphenol Ethoxylates :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|--|---|-----|-------------------------------|---------|
| 1 | With reference to ASTM International Standard ASTM D7065. (For Wastewater) | Each (OP & NP): 0.001; Each (OPEOs & NPEOs): 0.005 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Octylphenol (OP) | Various | 3 | Nonylphenol (NP) | Various |
| 2 | Octylphenoethoxylates (OPEOs) | | 4 | Nonylphenoethoxylates (NPEOs) | |

List of Perfluorinated Chemicals :

| No. | Test Method | Reporting Limit | | Unit | |
|-----|--|-----------------|-----|-------------------------------------|------------|
| 1 | In house method and analysis by Liquid Chromatograph Mass Spectrometer (LC-MS). (For Wastewater) | Each: 0.00001 | | Ppm | |
| No. | Name of Analytes | CAS-No. | No. | Name of Analytes | CAS-No. |
| 1 | Perfluorooctanoic acid (PFOA) | 335-67-1 | 4 | Perfluorohexane sulphonates (PFHxS) | 3871-99-6 |
| 2 | Perfluorooctane sulphonates (PFOS) | 2795-39-3 | 5 | Perfluorobutanoic acid (PFBA) | 375-22-4 |
| 3 | Perfluoro-n-hexanoic acid (PFHxA) | 307-24-4 | 6 | Perfluorobutane sulphonates (PFBS) | 29420-49-3 |

- U. S. EPA = United States Environmental Protection Agency
- APHA = American Public Health Association

For clarification, please see the unit comparison below:

- PPM (part per million) = mg/L (milligrams per liter), mg/kg (milligrams per kilogram)
- PPB (part per billion) = µg/L (micrograms per liter), µg/kg (micrograms per kilogram)
- PPT (parts per trillion) = ng/L (nanograms per liter), ng/kg (nanograms per kilogram)



4. EXPLANATION OF THE RESULTS

G-Star considers the results of these water tests a baseline assessment of the use and discharge of the 11 priority chemicals in our supply chain. Although it is difficult to draw conclusions from a baseline assessment, some general remarks can be made.

GENERAL BASIC REMARKS

Bureau Veritas found that the results of the samples tested for this batch were all within the legal limits of the applicable local laws. Bureau Veritas tested the samples against the lowest detection limits³ available.

For this batch water samples were taken in four different countries: China, Bangladesh, India and Vietnam. According to Bureau Veritas the water discharge results differ per country. In general, they state that the water discharged in Bangladesh and Vietnam contains fewer chemicals than in China and India. Although G-Star did not test a representable sample to confirm this statement, the results of our baseline assessment are in line with this general remark.

The three most detected substances in the output water were:

Heavy metals⁴

There are many explanations for the presence of heavy metals in the waste water after treatment. For example, metals are commonly used in pigments, dyes, heat stabilizers, leather tanning, surface treatments, pesticides, and catalysts. They can be found in natural fibres, synthetic fibres, natural leather, synthetic leather, plastics, rubber, paints, surface coatings and metal trims. They can also be present in metal piping, machines and metal trims. Therefore, finding the root cause of heavy metal contamination is challenging and can only be done through further investigation.

Phthalates⁵

Phthalates are man-made chemicals that are frequently used in the production processes of garments or are the result of a degradation product. Phthalates are mainly used as softeners and sometimes in the printing process. They can be used in the plastic plumbing pipes of the production plant, which can also result in a possible contamination. Furthermore, they can be incorporated as an additive to modify the performance of the material. Since there is no chemical bond holding them in place, phthalates can migrate out of the intended material and become available to the user or environment.

APs and APEOs⁶

APEOs and their derivatives are a group of man-made chemicals that do not occur naturally. They are synthetic non-ionic surfactants used in some detergents and cleaning products. Surfactants are a functional class of chemicals that provide increased surface activity and reduce the surface tension of water, allowing easier spreading, wetting and better mixing of liquids. APEOs, especially Nonylphenol Ethoxylates (NPEOs) are widely used and important surfactants for more than fifty years. They are used as wetting agents, emulsifiers, and dispersants in paints and coatings, residual and commercial cleaning products, in crop protection chemicals and textile manufacturing and pulp and paper processing. In the apparel industry they are commonly used as detergents in the textile wet processing industry but they are also used in small quantities as emulsifiers or wetting agents in some dyestuff and pigment preparations.

G-Star has banned the use of Phthalates, APs and APEOs since July 2012. The majority of these chemicals detected in this batch originate from second tier suppliers and no traces of these chemicals are found on the ready-made garments. G-Star is keen on finding the root cause of these detected substances as soon as possible.

³ Please see column *Testing methods and detection limits* on page 9 in chapter 3 *Method*.

⁴ Textile Exchange, *Textile Exchange Chemical Snapshot*, Heavy metals, Version 1 – July 2013.

⁵ Textile Exchange, *Textile Exchange Chemical Snapshot*, Phthalates, Version 1 – July 2013.

⁶ Textile Exchange, *Textile Exchange Chemical Snapshot*, Alkylphenols & Alkylphenol Ethoxylates (AP & APEOs), Version 2 – January 2013.

FACTORY SPECIFIC REMARKS

Factory 1 Vietnam

This factory is located in a green zone and makes use of a closed circuit water system. This means it does not release any water into the environment after usage. The water used is recycled for 100%. Even though the impact of the results of this factory is different because these chemicals will not be discharged, the factory took immediate action after receiving the test results. A treatment step, waste water treatment by electro coagulation and flotation, is added in order to reduce the presence of COD, BOD and heavy metals in the water after treatment. In addition, they have already replaced some chemicals which contain Phthalates and heavy metals. In addition, this factory makes bricks from the sludge that is created during the production process and those are used for the construction of buildings.

Factory 6 China, Factory 9 China & Factory 5 Bangladesh

These factories are located in an industrial zone and make use of a centralized effluent treatment plant. When studying the development of the presence of chemicals in the different tested stages (incoming water, waste water before treatment and waste water after treatment) one can conclude that some chemicals were added by other factories making use of the same centralized effluent treatment plant. This means that certain chemicals were not found in the incoming water and waste water before treatment, but were detected in (a higher level in) the waste water after treatment. This doesn't mean however that these factories should not be alerted by these results.

5. CONCLUSIONS

The goal of this research was to do a baseline assessment of the use and discharge of the 11 priority chemicals in G-Star's supply chain. Water Discharge Report I and II present the results of this baseline assessment. With help of this assessment, G-Star obtained a basic idea of the presence of the 11 priority chemicals in 80% of our supply chain.

G-Star learned that traces of the 11 priority chemicals were found in the wastewater after treatment of the tested factories. Heavy metals were found most often in the waste water after treatment. The results indicate that somewhere in the production process of garments the detected chemicals were used or came in contact with the water used. Since G-Star is committed to the goal of zero discharge of hazardous chemicals it will research the root cause for the presence of the chemicals detected and will undertake the appropriate corrective actions.

As G-Star acknowledges the importance of the 'right to know principle' it will keep pushing for a functioning and known PRTR platform for all our production countries except for China where the platform IPE is in place already. As soon as a proper platform for disclosure is available for the remaining countries, the dialogue on disclosure of water discharge data with our suppliers will be continued.

Reaching the target of ZDHC by 2020 cannot be achieved alone; this is an industry effort. Looking at these results it can be noted that the input water plays part in the contamination of the water after treatment. This should be addressed together with all industry stakeholders.

In the prior chapter some general and factory specific remarks were made about the test results. However, it is evident that further root cause investigation at factory level is necessary. Our Chemical Specialists are working from the very start of the production with the factories, not only from G-Star's side but also with bluesign technologies ag and the ZDHC Joint Roadmap. They check the use of chemical products, search for environmentally friendly substitutes for hazardous chemicals and work with suppliers towards phasing out harmful chemicals from their production processes.

Although the water testing is an important step of knowledge building, G-Star is aware that still many steps need to be taken to understand the contamination of water by chemicals and come to zero discharge of hazardous chemicals.

6. FOLLOW UP ACTIONS

As stated before, although it is difficult to draw definite conclusions from a baseline assessment, the results in this report do allow us to formulate, prioritise and coordinate follow up activities with suppliers to reach our ZDHC target.

G-Star acknowledges that the road towards zero discharge of hazardous chemicals is complex. It is important to stay flexible and make adjustments over time. We see this as a process of continuous learning and improvement.

Some follow-up actions that we take up are:

- After publication of the Water Discharge report I G-Star and the suppliers took action on the findings of this report. Root cause investigation was initiated at all factories, but has not been fully completed. Root cause investigation on the detected substances for those suppliers included in the this report will be started following our policy to eliminate hazardous chemicals.
- It is clear that root cause investigation at factory level is essential. Our Chemical Specialists are working together with the suppliers in finding the root causes of the chemicals detected and performing the appropriate corrective actions. This process can involve the following steps (every factory has its own roadmap towards zero discharge of hazardous chemicals therefore it's not possible to describe one general applicable roadmap): self-assessments, chemical inventory and Material Safety Data Sheet investigation, environmental audits via the ZDHC Joint Roadmap, assessments of bluesign technologies ag, chemical and environmental management training and auditing. G-Star is of the opinion that it is important to work from both ends of our supply chain (raw material and end product: with our own teams, bluesign technologies ag and the ZDHC Joint Roadmap. Our Chemical Specialists are actively working on banning and replacing chemicals for environmental and human friendly alternatives together with our suppliers and the chemical industry.
- G-Star encourages suppliers to become a bluesign system partner.
- G-Star supports suppliers to publicly disclose their water discharge data via a PRTR platform.
- G-Star is in the processes of finalising and implementing a Manufacturing Restricted Substance List throughout our supply chain (expected Q1 2014).
- G-Star will continuously work on all of the points of our Detox Solution commitment, update our individual action plan and report on our individual actions (expected January 2014) and work on the ZDHC Joint Roadmap actions.

G-STAR RAW

APPENDIX I
BUREAU VERITAS TEST REPORTS



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November 18, 2013

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Factory Company Name: **Factory 6 China**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Sample & Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: November 5, 2013
Test Period: November 6, 2013 to November 18, 2013

Sample Description: Sample(s) received is/are stated to be:
I001) Composite liquid (Wastewater before treatment)
I002) Composite liquid (Wastewater after treatment)

Photo of the Sample/ Sampling Location

I001)



I002)



Executive Summary

| 11 Priority Chemical Groups | I001 | I002 |
|---|-------------|-------------|
| Phthalates | ● | ● |
| Brominated and Chlorinated Flame Retardants | ○ | ○ |
| Azo Dyes | ○ | ○ |
| Organotin Compounds | ○ | ○ |
| Chlorobenzenes | ○ | ● |
| Chlorinated Solvents | ○ | ○ |
| Chlorophenols | ● | ● |
| Short-Chain Chlorinated Paraffins | ○ | ○ |
| Heavy Metals | ● | ● |
| APs and APEOs | ● | ● |
| Perfluorinated Chemicals | ○ | ● |

Note / Key :

- ● – Detected
- ○ – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Phthalates

Test results of Phthalates are as below.

| Phthalates | I001 | I002 |
|-------------------|----------------|----------------|
| BBP | ND | ND |
| DBP | ND | ND |
| DEHP | 0.0515 | 0.0200 |
| DNOP | ND | ND |
| DINP | ND | ND |
| DIDP | ND | ND |
| DMP | ND | ND |
| DEP | ND | ND |
| DPRP | ND | ND |
| DIBP | 0.00596 | 0.00364 |
| DCHP | ND | ND |
| DnHP | ND | ND |
| DNP | ND | ND |
| DIOP | ND | ND |
| DMEP | ND | ND |

Chlorobenzenes

Test results of Chlorobenzenes are as below.

| Chlorobenzenes | I001 | I002 |
|---|-------------|----------------|
| Chlorobenzene | ND | 0.00072 |
| 1,2-Dichlorobenzene | ND | ND |
| 1,3-Dichlorobenzene, 1,4-Dichlorobenzene | ND | ND |
| 1,2,3- Trichlorobenzene | ND | ND |
| 1,2,4- Trichlorobenzene | ND | ND |
| 1,3,5- Trichlorobenzene | ND | ND |
| 1,2,3,4- Tetrachlorobenzene | ND | ND |
| 1,2,3,5- Tetrachlorobenzene, 1,2,4,5- Tetrachlorobenzene | ND | ND |
| Pentachlorobenzene | ND | ND |
| Hexachlorobenzene | ND | ND |

Test Result

Chlorophenols

Test results of Chlorophenols are as below.

| Chlorophenols | I001 | I002 |
|---|----------------|----------------|
| Pentachlorophenol | 0.00607 | 0.00057 |
| 2,3,4,5-Tetrachlorophenol | ND | ND |
| 2,3,4,6-Tetrachlorophenol | ND | ND |
| 2,3,5,6-Tetrachlorophenol | ND | ND |
| 2,4,6-Trichlorophenol | 0.00058 | ND |
| 2,3,5-Trichlorophenol | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND |
| 3,4,5-Trichlorophenol, 2,3,4-Trichlorophenol | ND | ND |
| 2,3-Dichlorophenol | ND | ND |
| 3,4-Dichlorophenol | ND | ND |
| 2,4-Dichlorophenol, 2,5-Dichlorophenol, 2,6-Dichlorophenol, 3,5-Dichlorophenol | 0.00152 | ND |
| 2-Chlorophenol | ND | ND |
| 3-Chlorophenol | ND | ND |
| 4-Chlorophenol | ND | ND |

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 |
|--------------|----------------|----------------|
| As | 0.0230 | 0.00139 |
| Cd | 0.00050 | ND |
| Hg | 0.00007 | ND |
| Pb | 0.00414 | ND |
| Sb | 0.0652 | 0.0368 |
| Co | 0.00461 | ND |
| Ni | 0.00664 | 0.00884 |
| Cu | 0.0434 | 0.0112 |
| Zn | 0.259 | 0.0985 |
| Cr | 0.0665 | 0.00359 |
| Mn | 0.336 | 0.135 |
| Cr VI | ND | ND |
| CN | ND | ND |

APs and APEOs

Test results of APs and APEOs are as below.

| APs and APEOs | I001 | I002 |
|---------------|----------------|----------------|
| OP | ND | ND |
| NP | 0.00412 | 0.00452 |
| OPEOs | ND | ND |
| NPEOs | 0.123 | ND |

Test Result

Perfluorinated Chemicals

Test results of Perfluorinated Chemicals are as below.

| Perfluorinated Chemicals | I001 | I002 |
|---------------------------------|-------------|----------------|
| C8: | | |
| PFOA | ND | 0.00014 |
| PFOS | ND | ND |
| C6: | | |
| PFHxA | ND | ND |
| PFHxS | ND | ND |
| C4: | | |
| PFBA | ND | ND |
| PFBS | ND | ND |

Others Priority Chemical Groups

| | I001 | I002 |
|---|-------------|-------------|
| Brominated and Chlorinated Flame Retardants | ND | ND |
| Azo Dyes | ND | ND |
| Organotin Compounds | ND | ND |
| Chlorinated Solvents | ND | ND |
| Short-Chained Chlorinated Paraffins | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

END

Date Received: Nov 09, 2013

Factory Company Name: **Factory 8 China**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Sample & Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: Nov 08, 2013
Test Period: Nov 09, 2013 to Nov 26, 2013

Sample Description: Sample(s) received is/are stated to be:
I001) Composite liquid - Wastewater before treatment
I002) Composite liquid - Wastewater after treatment

Executive Summary

| 11 Priority Chemical Groups | I001 | I002 |
|---|-------------|-------------|
| Phthalates | o | o |
| Brominated and Chlorinated Flame Retardants | o | o |
| Azo Dyes | o | o |
| Organotin Compounds | o | o |
| Chlorobenzenes | o | o |
| Chlorinated Solvents | o | o |
| Chlorophenols | o | o |
| Short-Chained Chlorinated Paraffins | o | o |
| Heavy Metals | ● | ● |
| APs and APEOs | o | o |
| Perfluorinated Chemicals | o | o |

Note / Key :

- ● – Detected
- o – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 |
|---------------------|-------------|-------------|
| As | 0.00416 | ND |
| Cd | ND | ND |
| Hg | ND | ND |
| Pb | 0.00268 | 0.00182 |
| Sb | ND | ND |
| Co | ND | ND |
| Ni | ND | ND |
| Cu | 0.00354 | 0.00247 |
| Zn | 0.0284 | ND |
| Cr | ND | ND |
| Mn | 0.00571 | 0.00489 |
| Cr VI | ND | ND |
| CN | ND | ND |

Others Priority Chemical Groups

| | I001 | I002 |
|---|-------------|-------------|
| Phthalates | ND | ND |
| Brominated and Chlorinated Flame Retardants | ND | ND |
| Azo Dyes | ND | ND |
| Organotin Compounds | ND | ND |
| Chlorobenzenes | ND | ND |
| Chlorinated Solvents | ND | ND |
| Chlorophenols | ND | ND |
| Short-Chained Chlorinated Paraffins | ND | ND |
| APs and APEOs | ND | ND |
| Perfluorinated Chemicals | ND | ND |

Remark :

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

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

END

Factory Company Name: **Factory 9 China**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Sample & Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: November 5, 2013
Test Period: November 5, 2013 to November 15, 2013

Sample Description: Sample(s) received is/are stated to be:
I001) Composite liquid (Wastewater before treatment)
I002) Composite liquid (Wastewater after treatment)

Photo of the Sample/ Sampling Location

I001)



I002)



Executive Summary

| 11 Priority Chemical Groups | I001 | I002 |
|---|-------------|-------------|
| Phthalates | ● | ● |
| Brominated and Chlorinated Flame Retardants | ○ | ○ |
| Azo Dyes | ○ | ○ |
| Organotin Compounds | ○ | ○ |
| Chlorobenzenes | ○ | ● |
| Chlorinated Solvents | ○ | ○ |
| Chlorophenols | ○ | ○ |
| Short-Chained Chlorinated Paraffins | ○ | ○ |
| Heavy Metals | ● | ● |
| APs and APEOs | ● | ○ |
| Perfluorinated Chemicals | ○ | ○ |

Note / Key :

- ● – Detected
- ○ – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Phthalates

Test results of Phthalates are as below.

| Phthalates | I001 | I002 |
|-------------------|----------------|----------------|
| BBP | ND | ND |
| DBP | ND | ND |
| DEHP | 0.0384 | 0.0159 |
| DNOP | ND | ND |
| DINP | ND | ND |
| DIDP | ND | ND |
| DMP | ND | ND |
| DEP | ND | ND |
| DPRP | ND | ND |
| DIBP | 0.00460 | 0.00228 |
| DCHP | ND | ND |
| DnHP | ND | ND |
| DNP | ND | ND |
| DIOP | ND | ND |
| DMEP | ND | ND |

Chlorobenzenes

Test results of Chlorobenzenes are as below.

| Chlorobenzenes | I001 | I002 |
|---|-------------|----------------|
| Chlorobenzene | ND | 0.00054 |
| 1,2-Dichlorobenzene | ND | ND |
| 1,3-Dichlorobenzene, 1,4-Dichlorobenzene | ND | ND |
| 1,2,3- Trichlorobenzene | ND | ND |
| 1,2,4- Trichlorobenzene | ND | ND |
| 1,3,5- Trichlorobenzene | ND | ND |
| 1,2,3,4- Tetrachlorobenzene | ND | ND |
| 1,2,3,5- Tetrachlorobenzene, 1,2,4,5- Tetrachlorobenzene | ND | ND |
| Pentachlorobenzene | ND | ND |
| Hexachlorobenzene | ND | ND |

Test Result

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 |
|---------------------|----------------|----------------|
| As | ND | ND |
| Cd | ND | ND |
| Hg | ND | ND |
| Pb | 0.0677 | ND |
| Sb | 0.00637 | 0.00428 |
| Co | ND | ND |
| Ni | 0.00487 | 0.00335 |
| Cu | 0.00689 | ND |
| Zn | 0.0375 | 0.0283 |
| Cr | 0.00157 | ND |
| Mn | 0.0326 | 0.0464 |
| Cr VI | ND | ND |
| CN | ND | ND |

APs and APEOs

Test results of APs and APEOs are as below.

| APs and APEOs | I001 | I002 |
|----------------------|---------------|-------------|
| OP | ND | ND |
| NP | 0.0147 | ND |
| OPEOs | ND | ND |
| NPEOs | 0.0160 | ND |

Others Priority Chemical Groups

| | I001 | I002 |
|---|-------------|-------------|
| Brominated and Chlorinated Flame Retardants | ND | ND |
| Azo Dyes | ND | ND |
| Organotin Compounds | ND | ND |
| Chlorinated Solvents | ND | ND |
| Chlorophenols | ND | ND |
| Short-Chained Chlorinated Paraffins | ND | ND |
| Perfluorinated Chemicals | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

END

Date Received: October 26, 2013

Factory Company Name: **Factory 1 Bangladesh**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Sample & Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: October 26, 2013
Test Period: October 26, 2013 to November 06, 2013

Sample Description: Sample(s) received is/are stated to be:
I001) Incoming water
I002) Wastewater before treatment
I003) Wastewater after treatment

Executive Summary

| 11 Priority Chemical Groups | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | o | o | o |
| Brominated and Chlorinated Flame Retardants | o | o | o |
| Azo Dyes | o | o | o |
| Organotin Compounds | o | o | o |
| Chlorobenzenes | o | o | o |
| Chlorinated Solvents | o | o | o |
| Chlorophenols | o | o | o |
| Short-Chain Chlorinated Paraffins | o | o | o |
| Heavy Metals | ● | ● | ● |
| APs and APEOs | o | o | o |
| Perfluorinated Chemicals | o | o | o |

Note / Key :

- ● – Detected
- o – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 | I003 |
|---------------------|---------------|----------------|----------------|
| As | ND | 0.0018 | ND |
| Cd | ND | 0.00116 | 0.00013 |
| Hg | ND | ND | ND |
| Pb | ND | 0.0074 | 0.0013 |
| Sb | ND | 0.012 | 0.0104 |
| Co | ND | ND | ND |
| Ni | ND | ND | ND |
| Cu | ND | 0.0946 | 0.0838 |
| Zn | ND | 0.421 | 0.28 |
| Cr | 0.0067 | 0.01 | 0.0097 |
| Mn | ND | 0.025 | 0.0191 |
| Cr VI | ND | ND | ND |
| CN ⁻ | ND | ND | ND |

Others Priority Chemical Groups

| | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | ND | ND | ND |
| Brominated and Chlorinated Flame Retardants | ND | ND | ND |
| Azo Dyes | ND | ND | ND |
| Organotin Compounds | ND | ND | ND |
| Chlorobenzenes | ND | ND | ND |
| Chlorinated Solvents | ND | ND | ND |
| Chlorophenols | ND | ND | ND |
| Short-Chained Chlorinated Paraffins | ND | ND | ND |
| APs and APEOs | ND | ND | ND |
| Perfluorinated Chemicals | ND | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

END

Date Received: November 10, 2013

Factory Company Name: **Factory 2 Bangladesh**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Sample & Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: November 10, 2013
Test Period: November 10, 2013 to November 20, 2013

Sample Description: Sample(s) received is/are stated to be:
I001) Incoming water
I002) Wastewater before treatment
I003) Wastewater after treatment

Executive Summary

| 11 Priority Chemical Groups | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | o | o | o |
| Brominated and Chlorinated Flame Retardants | o | o | o |
| Azo Dyes | o | ● | o |
| Organotin Compounds | o | ● | o |
| Chlorobenzenes | o | o | o |
| Chlorinated Solvents | o | o | o |
| Chlorophenols | o | o | o |
| Short-Chain Chlorinated Paraffins | ● | ● | ● |
| Heavy Metals | ● | ● | ● |
| APs and APEOs | o | o | o |
| Perfluorinated Chemicals | o | o | o |

Note / Key :

- ● – Detected
- o – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Azo Dyes

Test results of Azo Dyes are as below.

| Amines | I001 | I002 | I003 |
|-------------------------------------|-------------|---------------|-------------|
| 4-Aminodiphenyl | ND | ND | ND |
| Benzidine | ND | ND | ND |
| 4-Chloro-o-toluidine | ND | ND | ND |
| 2-Naphthylamine | ND | ND | ND |
| o-Aminoazotoluene | ND | ND | ND |
| 5-nitro-o-toluidine | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND |
| 4-Methoxy-m-phenylenediamine | ND | ND | ND |
| 4,4'-Diaminodiphenylmethane | ND | ND | ND |
| 3,3'-Dichlorobenzidine | ND | ND | ND |
| 3,3'-Dimethoxybenzidine | ND | ND | ND |
| 3,3'-Dimethylbenzidine | ND | ND | ND |
| 4,4'-Methylenedi-o-toluidine | ND | ND | ND |
| p-Cresidine | ND | ND | ND |
| 4,4'-Methylene-bis-(2-chloraniline) | ND | ND | ND |
| 4,4'-Oxydianiline | ND | ND | ND |
| 4,4'-Thiodianiline | ND | ND | ND |
| o-Toluidine | ND | ND | ND |
| 4-Methyl-m-phenylenediamine | ND | ND | ND |
| 2,4,5-Trimethylaniline | ND | ND | ND |
| o-Anisidine | ND | ND | ND |
| 4-Aminoazobenzene | ND | ND | ND |
| 2,4-Xylidine | ND | ND | ND |
| 2,6-Xylidine | ND | ND | ND |
| Aniline | ND | 0.0184 | ND |

Organotin Compounds

Test results of Organotin Compounds are as below.

| Organotin Compounds | I001 | I002 | I003 |
|----------------------------|-------------|----------------|-------------|
| MBT | ND | 0.00007 | ND |
| DBT | ND | ND | ND |
| DOT | ND | ND | ND |
| TBT | ND | ND | ND |
| TPhT | ND | ND | ND |
| TCyHT | ND | ND | ND |
| TOT | ND | ND | ND |
| TPT | ND | ND | ND |

Short-Chained Chlorinated Paraffins

Test results of Short-Chained Chlorinated Paraffins are as below.

| | I001 | I002 | I003 |
|-------|---------------|---------------|---------------|
| SCCPs | 0.0459 | 0.0587 | 0.0147 |

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 | I003 |
|---------------------|---------------|---------------|---------------|
| As | ND | ND | ND |
| Cd | ND | ND | ND |
| Hg | ND | ND | ND |
| Pb | ND | 0.023 | 0.0035 |
| Sb | ND | 0.2007 | 0.1284 |
| Co | ND | 0.004 | 0.0011 |
| Ni | ND | 0.0052 | ND |
| Cu | ND | 0.0118 | ND |
| Zn | ND | 0.1771 | ND |
| Cr | 0.0013 | 0.0364 | 0.012 |
| Mn | 0.0421 | 0.042 | 0.03 |
| Cr VI | ND | ND | ND |
| CN | ND | ND | ND |

Others Priority Chemical Groups

| | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | ND | ND | ND |
| Brominated and Chlorinated Flame Retardants | ND | ND | ND |
| Chlorobenzenes | ND | ND | ND |
| Chlorinated Solvents | ND | ND | ND |
| Chlorophenols | ND | ND | ND |
| APs and APEOs | ND | ND | ND |
| Perfluorinated Chemicals | ND | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

Date Received: November 02, 2013

Factory Company Name: **Factory 3 Bangladesh**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: November 02, 2013
Test Period: November 02, 2013 to November 12, 2013

Sample Description: Sample(s) received is/are stated to be:
I001) Wastewater before treatment
I002) Wastewater after treatment

Executive Summary

| 11 Priority Chemical Groups | I001 | I002 |
|---|-------------|-------------|
| Phthalates | o | o |
| Brominated and Chlorinated Flame Retardants | o | o |
| Azo Dyes | o | o |
| Organotin Compounds | o | o |
| Chlorobenzenes | o | o |
| Chlorinated Solvents | o | o |
| Chlorophenols | o | o |
| Short-Chained Chlorinated Paraffins | o | ● |
| Heavy Metals | ● | ● |
| APs and APEOs | o | o |
| Perfluorinated Chemicals | o | o |

Note / Key :

- ● – Detected
- o – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Short-Chained Chlorinated Paraffins

Test results of Short-Chained Chlorinated Paraffins are as below.

| | I001 | I002 |
|-------|-------------|---------------|
| SCCPs | ND | 0.0083 |

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 |
|---------------------|---------------|--------------|
| As | ND | ND |
| Cd | ND | ND |
| Hg | ND | ND |
| Pb | ND | ND |
| Sb | ND | ND |
| Co | ND | ND |
| Ni | ND | ND |
| Cu | 0.1002 | ND |
| Zn | 0.0816 | ND |
| Cr | 0.032 | 0.008 |
| Mn | 0.0404 | 0.002 |
| Cr VI | ND | ND |
| CN ⁻ | ND | ND |

Others Priority Chemical Groups

| | I001 | I002 |
|---|-------------|-------------|
| Phthalates | ND | ND |
| Brominated and Chlorinated Flame Retardants | ND | ND |
| Azo Dyes | ND | ND |
| Organotin Compounds | ND | ND |
| Chlorobenzenes | ND | ND |
| Chlorinated Solvents | ND | ND |
| Chlorophenols | ND | ND |
| APs and APEOs | ND | ND |
| Perfluorinated Chemicals | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

Date Received: November 16, 2013

Factory Company Name: **Factory 4 Bangladesh**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Sample & Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: November 16, 2013
Test Period: November 16, 2013 to November 27, 2013

Sample Description: Sample(s) received is/are stated to be:
I001) Incoming water
I002) Wastewater before treatment
I003) Wastewater after treatment

Executive Summary

| 11 Priority Chemical Groups | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | o | o | o |
| Brominated and Chlorinated Flame Retardants | o | o | o |
| Azo Dyes | o | o | o |
| Organotin Compounds | o | o | o |
| Chlorobenzenes | o | o | o |
| Chlorinated Solvents | o | o | o |
| Chlorophenols | o | o | o |
| Short-Chain Chlorinated Paraffins | o | o | o |
| Heavy Metals | ● | ● | ● |
| APs and APEOs | o | o | o |
| Perfluorinated Chemicals | o | o | o |

Note / Key :

- ● – Detected
- o – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals, and below Global Effluent Requirements.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 | I003 |
|---------------------|--------------|---------------|---------------|
| As | ND | ND | ND |
| Cd | ND | ND | ND |
| Hg | ND | ND | ND |
| Pb | ND | 0.008 | 0.01 |
| Sb | ND | 0.0274 | 0.009 |
| Co | ND | ND | ND |
| Ni | ND | ND | ND |
| Cu | ND | 0.0402 | 0.0305 |
| Zn | ND | 0.1166 | 0.1468 |
| Cr | 0.005 | 0.0042 | 0.005 |
| Mn | ND | 0.0055 | 0.0327 |
| Cr VI | ND | ND | ND |
| CN ⁻ | ND | 1.645 | ND |

Others Priority Chemical Groups

| | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | ND | ND | ND |
| Brominated and Chlorinated Flame Retardants | ND | ND | ND |
| Azo Dyes | ND | ND | ND |
| Organotin Compounds | ND | ND | ND |
| Chlorobenzenes | ND | ND | ND |
| Chlorinated Solvents | ND | ND | ND |
| Chlorophenols | ND | ND | ND |
| Short-Chained Chlorinated Paraffins | ND | ND | ND |
| APs and APEOs | ND | ND | ND |
| Perfluorinated Chemicals | ND | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

Date Received: November 23, 2013

Factory Company Name: **Factory 5 Bangladesh**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Samples*
Sample Pick Up Date: November 23, 2013 (Sample I001 & I002)
December 01, 2013 (Sample I003)
Test Period: November 23, 2013 to December 09, 2013
Sample Description: Sample(s) received is/are stated to be:
I001) Incoming Water
I002) Wastewater before treatment
I003) Wastewater after treatment from CETP Outlet

Executive Summary

| 11 Priority Chemical Groups | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | o | o | o |
| Brominated and Chlorinated Flame Retardants | o | o | o |
| Azo Dyes | o | o | o |
| Organotin Compounds | o | ● | o |
| Chlorobenzenes | o | o | o |
| Chlorinated Solvents | o | o | o |
| Chlorophenols | o | o | o |
| Short-Chain Chlorinated Paraffins | o | o | o |
| Heavy Metals | ● | ● | ● |
| APs and APEOs | o | ● | ● |
| Perfluorinated Chemicals | o | o | o |

Note / Key :

- ● – Detected
- o – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Organotin Compounds

Test results of Organotin Compounds are as below.

| Organotin Compounds | I001 | I002 | I003 |
|----------------------------|-------------|---------------|-------------|
| MBT | ND | 0.0018 | ND |
| DBT | ND | 0.0001 | ND |
| DOT | ND | ND | ND |
| TBT | ND | ND | ND |
| TPhT | ND | ND | ND |
| TCyHT | ND | ND | ND |
| TOT | ND | ND | ND |
| TPT | ND | ND | ND |

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 | I003 |
|---------------------|---------------|---------------|---------------|
| As | 0.0018 | 0.0032 | ND |
| Cd | ND | ND | ND |
| Hg | ND | ND | ND |
| Pb | ND | ND | 0.0015 |
| Sb | ND | ND | ND |
| Co | ND | 0.0025 | ND |
| Ni | ND | 0.0077 | ND |
| Cu | ND | 0.0205 | ND |
| Zn | ND | ND | 0.0132 |
| Cr | 0.0013 | 0.022 | 0.002 |
| Mn | 0.79 | 0.5715 | 0.69 |
| Cr VI | ND | ND | ND |
| CN | ND | ND | ND |

APs and APEOs

Test results of APs and APEOs are as below.

| APs and APEOs | I001 | I002 | I003 |
|----------------------|-------------|-------------|---------------|
| OP | ND | ND | ND |
| NP | ND | ND | ND |
| OPEOs | ND | ND | ND |
| NPEOs | ND | 0.11 | 0.0076 |

Others Priority Chemical Groups

| | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | ND | ND | ND |
| Brominated and Chlorinated Flame Retardants | ND | ND | ND |
| Azo Dyes | ND | ND | ND |
| Chlorobenzenes | ND | ND | ND |
| Chlorinated Solvents | ND | ND | ND |
| Chlorophenols | ND | ND | ND |
| Short-Chain Chlorinated Paraffins | ND | ND | ND |
| Perfluorinated Chemicals | ND | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

Date Received: 11/12/2013

Factory Company Name: **Factory 1 Viet Nam**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Sample & Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: 11/11/2013
Test Period: 11/12/2013 – 11/25/2013

Sample Description: Sample(s) received is/are stated to be:
I001) Water before biological treatment.
I002) Water after biological treatment.
I003) Water before reverse osmosis.
I004) Water after reverse osmosis.

Executive Summary

| 11 Priority Chemical Groups | I001 | I002 | I003 | I004 |
|---|-------------|-------------|-------------|-------------|
| Phthalates | ● | ● | ● | ● |
| Brominated and Chlorinated Flame Retardants | ○ | ○ | ○ | ○ |
| Azo Dyes | ● | ● | ○ | ○ |
| Organotin Compounds | ● | ● | ○ | ○ |
| Chlorobenzenes | ○ | ○ | ○ | ○ |
| Chlorinated Solvents | ○ | ○ | ○ | ○ |
| Chlorophenols | ○ | ○ | ● | ● |
| Short-Chained Chlorinated Paraffins | ○ | ○ | ○ | ○ |
| Heavy Metals | ● | ● | ● | ● |
| APs and APEOs | ○ | ○ | ○ | ○ |
| Perfluorinated Chemicals | ○ | ○ | ○ | ○ |

Note / Key :

- ● – Detected
- ○ – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Phthalates

Test results of Phthalates are as below.

| Phthalates | I001 | I002 | I003 | I004 |
|------------|---------------|---------------|---------------|---------------|
| BBP | ND | ND | ND | ND |
| DBP | ND | ND | ND | ND |
| DEHP | 0.0086 | 0.0056 | 0.0014 | 0.0029 |
| DNOP | ND | ND | ND | ND |
| DINP | ND | ND | ND | ND |
| DIDP | ND | ND | ND | ND |
| DMP | ND | ND | ND | ND |
| DEP | ND | ND | ND | ND |
| DPRP | ND | ND | ND | ND |
| DIBP | ND | ND | ND | ND |
| DCHP | ND | ND | ND | ND |
| DnHP | ND | ND | ND | ND |
| DNP | ND | ND | ND | ND |
| DIOP | ND | ND | ND | ND |
| DMEP | ND | ND | ND | ND |

Azo Dyes

Test results of Azo Dyes are as below.

| Amines | I001 | I002 | I003 | I004 |
|-------------------------------------|---------------|---------------|------|------|
| 4-Aminodiphenyl | ND | ND | ND | ND |
| Benzidine | ND | ND | ND | ND |
| 4-Chloro-o-toluidine | ND | ND | ND | ND |
| 2-Naphthylamine | ND | ND | ND | ND |
| o-Aminoazotoluene | ND | ND | ND | ND |
| 5-nitro-o-toluidine | ND | ND | ND | ND |
| 4-Chloroaniline | 0.0051 | ND | ND | ND |
| 4-Methoxy-m-phenylenediamine | ND | ND | ND | ND |
| 4,4'-Diaminodiphenylmethane | ND | ND | ND | ND |
| 3,3'-Dichlorobenzidine | ND | ND | ND | ND |
| 3,3'-Dimethoxybenzidine | ND | ND | ND | ND |
| 3,3'-Dimethylbenzidine | ND | ND | ND | ND |
| 4,4'-Methylenedi-o-toluidine | ND | ND | ND | ND |
| p-Cresidine | ND | ND | ND | ND |
| 4,4'-Methylene-bis-(2-chloraniline) | ND | ND | ND | ND |
| 4,4'-Oxydianiline | ND | ND | ND | ND |
| 4,4'-Thiodianiline | ND | ND | ND | ND |
| o-Toluidine | ND | ND | ND | ND |
| 4-Methyl-m-phenylenediamine | ND | ND | ND | ND |
| 2,4,5-Trimethylaniline | ND | ND | ND | ND |
| o-Anisidine | ND | ND | ND | ND |
| 4-Aminoazobenzene | ND | ND | ND | ND |
| 2,4-Xylidine | ND | ND | ND | ND |
| 2,6-Xylidine | ND | ND | ND | ND |
| Aniline | 0.0694 | 0.0107 | ND | ND |

Organotin Compounds

Test results of Organotin Compounds are as below.

| Organotin Compounds | I001 | I002 | I003 | I004 |
|---------------------|---------|---------|------|------|
| MBT | 0.00021 | 0.00005 | ND | ND |
| DBT | ND | ND | ND | ND |
| DOT | ND | ND | ND | ND |
| TBT | ND | ND | ND | ND |
| TPhT | ND | ND | ND | ND |
| TCyHT | ND | ND | ND | ND |
| TOT | ND | ND | ND | ND |
| TPT | ND | ND | ND | ND |

Chlorophenols

Test results of Chlorophenols are as below.

| Chlorophenols | I001 | I002 | I003 | I004 |
|---|------|------|--------|--------|
| Pentachlorophenol | ND | ND | ND | ND |
| 2,3,4,5-Tetrachlorophenol | ND | ND | ND | ND |
| 2,3,4,6-Tetrachlorophenol | ND | ND | ND | ND |
| 2,3,5,6-Tetrachlorophenol | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | 0.0021 | 0.0018 |
| 2,3,5-Trichlorophenol | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND |
| 3,4,5-Trichlorophenol, 2,3,4-Trichlorophenol | ND | ND | ND | ND |
| 2,3-Dichlorophenol | ND | ND | ND | ND |
| 3,4-Dichlorophenol | ND | ND | ND | ND |
| 2,4-Dichlorophenol, 2,5-Dichlorophenol, 2,6-Dichlorophenol, 3,5-Dichlorophenol | ND | ND | 0.0006 | ND |
| 2-Chlorophenol | ND | ND | ND | ND |
| 3-Chlorophenol | ND | ND | ND | ND |
| 4-Chlorophenol | ND | ND | ND | ND |

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 | I003 | I004 |
|-----------------|--------|--------|--------|--------|
| As | 0.001 | 0.001 | 0.001 | ND |
| Cd | 0.0005 | 0.0004 | 0.0002 | 0.0004 |
| Hg | ND | ND | ND | ND |
| Pb | 0.013 | 0.012 | 0.007 | 0.008 |
| Sb | 0.003 | 0.003 | 0.002 | 0.010 |
| Co | ND | ND | ND | ND |
| Ni | 0.005 | 0.008 | 0.004 | 0.001 |
| Cu | 0.033 | 0.027 | 0.014 | 0.017 |
| Zn | 0.333 | 0.270 | 0.162 | 0.192 |
| Cr | 0.045 | 0.025 | 0.004 | 0.004 |
| Mn | 0.104 | 0.718 | 0.012 | 0.016 |
| Cr VI | ND | ND | ND | ND |
| CN ⁻ | ND | ND | ND | ND |

Others Priority Chemical Groups

| | I001 | I002 | I003 | I004 |
|---|-------------|-------------|-------------|-------------|
| Brominated and Chlorinated Flame Retardants | ND | ND | ND | ND |
| Chlorinated Solvents | ND | ND | ND | ND |
| Chlorobenzenes | ND | ND | ND | ND |
| Short-Chain Chlorinated Paraffins | ND | ND | ND | ND |
| APs and APEOs | ND | ND | ND | ND |
| Perfluorinated Chemicals | ND | ND | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

END

Date Received: December 04, 2013

Factory Company Name: **FACTORY 2 INDIA**
Factory Address: /
Project No.: /
Client Reference No.: /
Sample Type: Grab Sample & Time-Weighted Composite Grabbed Samples*
Sample Pick Up Date: November 30, 2013
Test Period: December 04, 2013 to December 12, 2013

Sample Description: Sample(s) received is/are stated to be:
I001) Incoming water
I002) Wastewater before treatment
I003) Wastewater after treatment

Executive Summary

| 11 Priority Chemical Groups | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Phthalates | ● | ○ | ○ |
| Brominated and Chlorinated Flame Retardants | ○ | ○ | ○ |
| Azo Dyes | ○ | ○ | ○ |
| Organotin Compounds | ○ | ○ | ○ |
| Chlorobenzenes | ● | ● | ○ |
| Chlorinated Solvents | ○ | ○ | ○ |
| Chlorophenols | ○ | ○ | ○ |
| Short-Chain Chlorinated Paraffins | ○ | ○ | ○ |
| Heavy Metals | ● | ● | ● |
| APs and APEOs | ● | ● | ○ |
| Perfluorinated Chemicals | ○ | ○ | ○ |

Note / Key :

- ● – Detected
- ○ – Not Detected

Objective

The environment samples were tested for below 11 Priority Chemical Groups according to the Joint Roadmap: Toward Zero Discharge of Hazardous Chemicals.

11 Priority Chemical Groups

- 1) Phthalates
- 2) Brominated and Chlorinated Flame Retardants
- 3) Azo Dyes
- 4) Organotin Compounds
- 5) Chlorobenzenes
- 6) Chlorinated Solvents
- 7) Chlorophenols
- 8) Short-Chained Chlorinated Paraffins
- 9) Heavy Metals
- 10) APs and APEOs
- 11) Perfluorinated Chemicals

Test Result

11 Priority Chemical Groups

Phthalates

Test results of Phthalates are as below.

| Phthalates | I001 | I002 | I003 |
|-------------------|-------------|-------------|-------------|
| BBP | ND | ND | ND |
| DBP | ND | ND | ND |
| DEHP | 0.006 | ND | ND |
| DNOP | ND | ND | ND |
| DINP | ND | ND | ND |
| DIDP | ND | ND | ND |
| DMP | ND | ND | ND |
| DEP | ND | ND | ND |
| DPRP | ND | ND | ND |
| DIBP | ND | ND | ND |
| DCHP | ND | ND | ND |
| DnHP | ND | ND | ND |
| DNP | ND | ND | ND |
| DIOP | ND | ND | ND |
| DMEP | ND | ND | ND |

Chlorobenzenes

Test results of Chlorobenzenes are as below.

| Chlorobenzenes | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Chlorobenzene | 0.037 | 0.043 | ND |
| 1,2-Dichlorobenzene | ND | ND | ND |
| 1,3-Dichlorobenzene, 1,4-Dichlorobenzene | ND | ND | ND |
| 1,2,3- Trichlorobenzene | ND | ND | ND |
| 1,2,4- Trichlorobenzene | ND | ND | ND |
| 1,3,5- Trichlorobenzene | ND | ND | ND |
| 1,2,3,4- Tetrachlorobenzene | ND | ND | ND |
| 1,2,3,5- Tetrachlorobenzene, 1,2,4,5- Tetrachlorobenzene | ND | ND | ND |
| Pentachlorobenzene | ND | ND | ND |
| Hexachlorobenzene | ND | ND | ND |

Heavy Metals

Test results of Heavy Metals are as below.

| Heavy Metals | I001 | I002 | I003 |
|---------------------|-------------|-------------|-------------|
| As | ND | ND | ND |
| Cd | ND | ND | ND |
| Hg | ND | ND | ND |
| Pb | ND | 0.0051 | 0.0015 |
| Sb | ND | ND | ND |
| Co | ND | ND | ND |
| Ni | ND | 0.0076 | 0.0040 |
| Cu | 0.00269 | 0.0772 | 0.0150 |
| Zn | 0.0110 | 0.0568 | 0.0223 |
| Cr | 0.0172 | 0.0302 | 0.0162 |
| Mn | 0.0093 | 0.0389 | 0.0231 |
| Cr VI | ND | ND | ND |
| CN | ND | ND | ND |

APs and APEOs

Test results of APs and APEOs are as below.

| APs and APEOs | I001 | I002 | I003 |
|----------------------|-------------|-------------|-------------|
| OP | ND | ND | ND |
| NP | ND | ND | ND |
| OPEOs | ND | ND | ND |
| NPEOs | 0.040 | 0.024 | ND |

Others Priority Chemical Groups

| | I001 | I002 | I003 |
|---|-------------|-------------|-------------|
| Brominated and Chlorinated Flame Retardants | ND | ND | ND |
| Azo Dyes | ND | ND | ND |
| Organotin Compounds | ND | ND | ND |
| Chlorinated Solvents | ND | ND | ND |
| Chlorophenols | ND | ND | ND |
| Short-Chained Chlorinated Paraffins | ND | ND | ND |
| Perfluorinated Chemicals | ND | 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 ppm as unit.
- ppm = part(s) per million.

Discussion

According to the test results, the priority chemical groups are found. It is suggested that further factory audit is required to identify the source of pollutants in the inventory.

END