

G-STAR RAW

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

AUGUST 2013



g-star.com

TABLE OF CONTENTS

1. INTRODUCTION	PAGE 3
2. FACTORY INFORMATION	PAGE 5
3. METHOD	PAGE 8
4. EXPLANATION OF THE RESULTS	PAGE 12
5. CONCLUSIONS	PAGE 13
6. FOLLOW UP ACTIONS	PAGE 14
APPENDIX I: TEST REPORT INTERTEK FACTORY 3 CHINA	

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.

First of all, cooperation across the entire industry is essential. Therefore, G-Star joined the ZDHC Joint Roadmap; an initiative of the brands adidas Group, C&A, Esprit, G-Star Raw, H&M, Inditex, Jack Wolfskin, Levi Strauss & Co., Li Ning, M&S, New Balance Athletic Shoe, Inc., NIKE, Inc., PUMA SE and PVH Corp. to collectively work towards zero discharge of hazardous chemicals by 2020. The ZDHC Joint Roadmap 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.

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.

WATER DISCHARGE REPORT I

This Water Discharge Report I is the next milestone towards our target to reach zero discharge of hazardous chemicals by 2020. The report describes the results of water tests executed at our Global South suppliers accounting together for a minimum of 25% of our global production. In December 2013 we will publish a second Water Discharge Report showing the water discharge data of our suppliers accounting for 80% of our global production. The results of these reports allow us to obtain a baseline understanding of the use and discharge of the 11 priority chemicals that are listed below, in our supply chain.

For this first report, Intertek¹ 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

¹ Intertek Testing Services Ltd., Shanghai, Intertek Testing Services Shenzhen Ltd. - Toys & Hardlines and Intertek India Private Ltd.

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 acknowledges 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 this research 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 factories decided not to publicly disclose via the IPE website, we will continue to encourage and support suppliers 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 the discharge data of one factory in China we refer to the appendix of this report.

2. FACTORY INFORMATION

For this report G-Star selected suppliers accounting for a minimum of 25% of our global production volume in Asia. In this chapter both the nature of the factory and the business relationship with G-Star are explained. Also it is mentioned where the water discharge data of the factories can be found.

G-Star does not publicly share its supplier details for competitive reasons. Therefore the names of the suppliers are anonymised in this report. Hence the Chinese suppliers uploaded their water discharge information to the IPE platform to publicly disclose this information themselves. For reference we numbered the factories and indicated the country of production in this report. Below the factories are described in more detail.

FACTORY 1 CHINA

Sector: Apparel

Subsector: washing and finishing

The factory is located in Jiangsu Province in China. This factory is specialised in producing garments. The main processes of this factory are cutting, printing, sewing, washing, finishing, packing and shipping. 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:



In line with the 'right to know principle', this Chinese factory publicly discloses the discharge data on the website of the IPE. Please visit the [IPE discharge platform website](#) for the results.

FACTORY 2 CHINA

Sector: Apparel

Subsector: Spraying, washing and dewatering

The factory is located in Jiangsu Province in China. This factory is specialised in producing garments. The main processes of this factory are cutting, stitching, printing, sewing, spraying, washing, dewatering, drying, ironing, inspecting and packaging. Furthermore, the factory has its own effluent treatment plant.

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



In line with the 'right to know principle', this Chinese factory publicly discloses the discharge data on the website of the IPE. Please visit the [IPE discharge platform website](#) for the results.

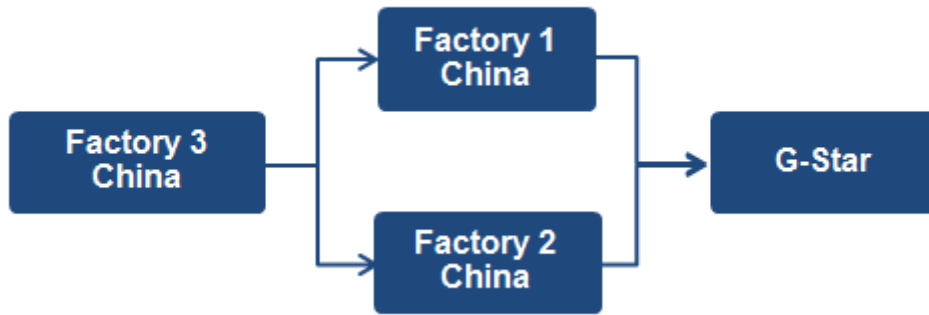
FACTORY 3 CHINA

Sector: Apparel

Subsector: dyeing

The factory is located in Changzhou City in Jiangsu Province in China. This factory is specialised in fabric making. The main processes in this factory are yarn spinning, weaving, dyeing and finishing. Furthermore, 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:



The supplier is currently researching other PRTR platforms and is therefore not ready to disclose the water discharge data on the IPE website at this moment. G-Star will continue the dialogue in this regard. The test report of this factory can be found in Appendix I of this report.

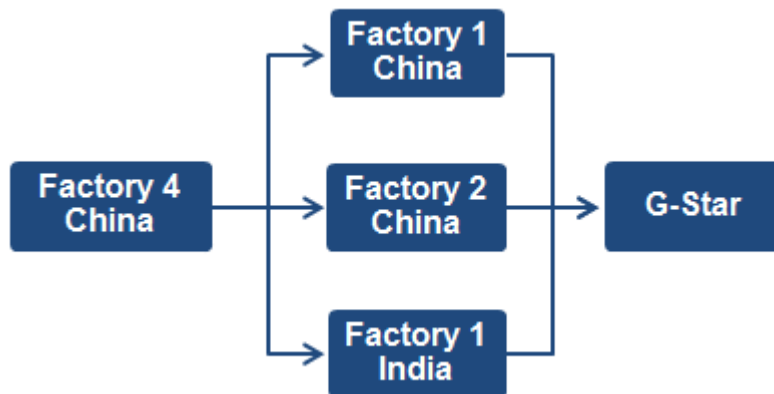
FACTORY 4 CHINA

Sector: Apparel

Subsector: Dyeing

The factory is located in Guangdong Province in China. This factory is specialised in fabric making. The main processes of this factory are: ball warping, warping, dyeing, sizing, beaming, weaving and finishing. Furthermore, 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:



In line with the ‘right to know principle’, this Chinese factory publicly discloses the discharge data on the website of the IPE. Please visit the [IPE discharge platform website](#) for the results.

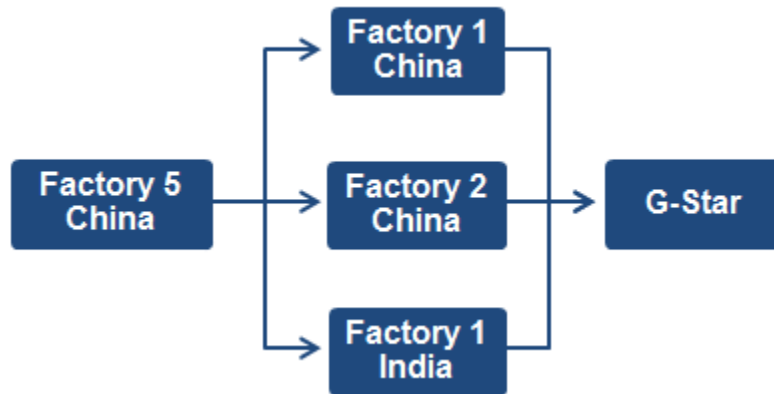
FACTORY 5 CHINA

Sector: Apparel

Subsector: Dyeing

The factory is located in Guangdong Province in China. This factory is specialised in fabric making. The main processes of this factory are 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:



In line with the 'right to know principle', this Chinese factory publicly discloses the discharge data on the website of the IPE. Please visit the [IPE discharge platform website](#) for the results.

FACTORY 1 INDIA

Sector: Apparel

Subsector: Washing and finishing

The factory is located in India. This factory is specialised in producing garments. The main processes of the facility that we have tested are washing and dry finishing processes for garments. Furthermore, the factory has its own effluent treatment plant.

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



G-Star and this supplier acknowledge the 'right to know principle'. However up till now there is unfortunately no proper platform for disclosure of discharge data in India that is also used by Indian communities. Hence this supplier feels disclosing single test results outside of a proper framework would be inadequate. The supplier planned multiple follow up tests on effluent water under different conditions to improve knowledge on water discharge data and act accordingly,

As soon as a proper platform for disclosure is available for India, the dialogue on disclosure of water discharge data will be continued.

3. METHOD²

LABORATORY SELECTION

G-Star chose Intertek as a service provider for the sample picking and the water testing because of its longstanding reputation for its testing services, global presence and experience in the textile industry.

Intertek is a leading quality solutions provider to industries worldwide. From auditing and inspection, to testing, training, advisory, quality assurance and certification, Intertek strives to add value to customers' products, processes and assets. With a network of more than 1,000 laboratories and offices and over 35,000 people in more than 100 countries, Intertek supports companies' success in a global marketplace. Intertek helps its customers to meet end users' expectations for safety, sustainability, performance, integrity and desirability in virtually any market worldwide. For more information we refer to the [Intertek website](#).

Since the samples were taken from factories in China and India several offices were involved in the sample collection and testing, namely Intertek Testing Services Ltd., Shanghai, Intertek Testing Services Shenzhen Ltd. - Toys & Hardlines and Intertek India Private Ltd..

INTERTEK SAMPLING METHOD

Intertek prepared a Sampling Plan and FAQ for the factories to inform them about the sampling procedure. The objective of this procedure was to collect the incoming water and the water before and after treatment.

Intertek took the following samples from each factory:

Type	Sampling	Volume	Type of sample
Input Water 1	Lab Bottles	7 liters	Grab sample
Input Water 2 (if any)	Lab Bottles	7 liters	Grab sample
Output Water Before Treatment	Lab Bottles	7 liters	Composite sample
Output Water after Treatment	Lab Bottles	7 liters	Composite sample
Additional Output Water (if any)	Lab Bottles	7 liters	Composite sample

A grab sample is a single sample of waste water that shows only the waste characteristics at the time when the sample is taken. It is usually taken when the wastewater to be sampled continuously flows or the wastewater characteristics are relatively constant. Composite samples are composited (mixed together) from a series of grab samples taken at specific time intervals. Composite samples more accurately represent the waste stream over a period of time and can be reflective of the daily conditions of the factory as long as the factory and the treatment plant are operating normally when the samples are taken.

The pictures below show a typical water sampling process.



² All information of this chapter is provided by Intertek.

The Intertek Sampling Personnel was instructed to record the sampling time, the quantity and source of the sample, the sample type and field analysis results (if applicable). Furthermore they were instructed to store the samples in proper condition and transport them back to the lab within a certain time window.

The factories were instructed to ensure normal production during the sampling day in order for the sample to reflect the daily condition of the factory's discharges and ensure that the wastewater treatment plant works properly. Furthermore, factories were required to show the water flow chart of the factory, the input water type, the waste water processing and the discharge points.

DETECTION LIMITS AND TEST METHODS

As per our commitment G-Star requested to test the samples to the limits of current technology³. Intertek 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 list below for the tested chemicals, the detection limits and test methods.

Chemical Group	Substances	CAS No.	Testing Method	DL in Wastewater ($\mu\text{g}/\text{L}$) in SH/SZ lab
Heavy metals	Cr(VI)	18540-29-9	ICP-MS and IC-ICP-MS Analysis	1
	Hg	7439-97-6		0.05
	Pb	7439-92-1		1
	Cd	7440-43-9		0.1
	Cr	7440-47-3		25
	Zn	7440-66-6		1
	Mg	7439-95-4		50
	Cyanide	-	HJ 484 by spectrophotometer Analysis	0.004
	Ni	7440-02-0	ICP-MS and IC-ICP-MS analysis	1
APEOs/Aps	Cu	7440-50-8		1
	NP	-	Solvent extraction and GC-MS and LC-MS/MS Analysis	1
	OP	-		1
	NPEO(1-2)	-		5
	OPEO(1-2)	-		5
	NPEO (3-18)	-		2.5
OPEO (3-18)	-	2.5		
Phthalates	DEHP	117-81-7	Solvent extraction and GC-MS Analysis	1
	DBP	84-74-2		1
	BBP	85-68-7		1
	DIBP	84-69-5		1
	DNOP	117-84-0		1
	DIDP	26761-40-0, 68515-49-1		1
	DINP	28553-12-0, 68515-48-0		1

³ Please see the table below column *DL in Wastewater ($\mu\text{g}/\text{L}$) in SH/SZ lab* for the detection limit per substance.

Brominated and Chlorinated flame retardants	HBCDD	25637-99-4, 3194-55-6 (134237-50-6) (134237-51-7) (134237-52-8)	Solvent extraction and LC-MS and GC-MS Analysis	0.5
	TRIS	126-72-7		0.5
	TCEP	115-96-8		0.05
	Tetra BDE	40088-47-9		0.05
	Penta BDE	32534-81-9		0.05
	Hexa BDE	36483-60-0		0.05
	Hepta BDE	68928-80-3		0.05
	OctaBDE	32536-52-0		0.05
	NonaBDE	63936-56-1		0.05
DecaBDE	1163-19-5	0.05		
Azo dyes	4-Aminodiphenyl	92-67-1	EN 14362, GC-MS and HPLC Analysis	0.1
	Benzidine	92-87-5		0.1
	4-Chloro-o-Toluidine	95-69-2		0.1
	2-Naphthylamine	91-59-8		0.1
	o-Aminoazotoluene	97-56-3		0.1
	2-Amino-4-Nitrotoluene	99-55-8		0.1
	p-Chloroaniline	106-47-8		0.1
	2,4-Diaminoaniline	615-05-4		0.1
	4,4'-Diaminodiphenylmethane	101-77-9		0.1
	3,3'-Dichlorobenzidine	91-94-1		0.1
	3,3'-Dimethoxybenzidine	119-90-4		0.1
	3,3'-Dimethylbenzidine	119-93-7		0.1
	3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0		0.1
	p-Cresidine	120-71-8		0.1
	4,4'-Methylene-Bis-(2-Chloroaniline)	101-14-4		0.1
	4,4'-Oxydianiline	101-80-4		0.1
	4,4'-Thiodianiline	139-65-1		0.1
	o-Toluidine	95-53-4		0.1
	2,4-Toluylenediamine (2,4-T)	95-80-7		0.1
	2,4,5-Trimethylaniline	137-17-7		0.1
o-Anisidine	90-04-0	0.1		
p-Aminoazobenzene	22162	0.1		
2,4-Xylidine	95-68-1	0.1		
2,6-Xylidine	87-62-7	0.1		
Organic tin	TBT	56573-85-4	DIN EN 17353, GC-MS Analysis	0.01
	DBT	1002-53-5		0.01
	MBT	78763-54-9		0.01
	DOT	15231-44-4		0.01
	TPhT	668-34-8		0.01
PFCs	PFOS	307-35-7	LC-MS/MS Analysis	0.01

	PFOA	335-67-1		0.01
	PFHXS	432-50-7		-
	PFHXA	307-24-4		-
	PFBS	375-73-5		-
	PFBA	375-22-4		-
Chlorobenzenes	Chlorobenzene	108-90-7	Solvent extraction and GC-MS Analysis	0.02
	dichlorobenzene	various		0.02
	trichlorobenzene	various		0.02
	tetrachlorobenzene	various		0.02
	pentachlorobenzene	608-93-5		0.02
	hexachlorobenzene	118-74-1		0.02
Chlorinated solvents	Dichloromethane	75-09-2	HS-GC/MS Analysis	1
	chloroform	67-66-3		1
	tetrachloromethane	56-23-5		1
	1,1,2-Trichloroethane	79-00-5		1
	1,1-dichloroethane	75-34-3		1
	1,2-dichloroethane	107-06-2		1
	Trichloroethylene	79-01-6.		1
	Perchloroethylene	127-18-4		1
Chlorophenols	PCP	87-86-5	Solvent extraction and Acetylated by Acetic Anhydride, GC-MS Analysis	0.5
	TeCP	25167-83-3		0.5
	TriCP	various		0.5
	DiCP	various		0.5
	Mono chlorophenol	various		0.5
SCCPS	SCCPs C10-C13	85535-84-8	Solvent extraction and GC-MS Analysis	0.4

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 first water tests as a baseline assessment of the use and discharge of the 11 priority chemicals of 25% of our global production volume. Although it is difficult to draw conclusions from a baseline assessment, some general remarks can be made. For the test reports that are attached to this report some specific remarks are made as well.

GENERAL BASIC REMARKS

Intertek found that the chemicals that were detected during the analyses were all within the legal limits of applicable local laws. Intertek tested the samples against the lowest detection limits⁴ available.

Input water: All tests of the input water in China detected one or more compounds of heavy metals. Furthermore, chlorinated solvents and phthalates were detected in the input water of all suppliers located in the Jiangsu area. Incidentally, azodyes and perfluorinated chemicals (PFCs) were found. Unfortunately, the IPE corporate template leaves no room for test results of the input water. However, G-Star will provide aggregated discharge data of the incoming water in the Water Discharge Report II.

Heavy metals: Except for heavy metals already being present in the input water, a possible explanation for the detection of heavy metals could be the use of dyes. Heavy metals are present in dyes, pigment chemicals and solvents. There are several explanations for the presences of heavy metals in dyes: they are used as catalysts during the manufacturing process or their presence could be a result of impurities. Another explanation for the presence of heavy metals (e.g. manganese) could be the use of sodium/ potassium permanganate as it is used in the finishing process of denims. Further the use of pumice stones could be a possible root cause for the contamination.

Phthalates and Chlorinated solvents: Except for phthalates and chlorinated solvents already being present in the input water, possible reasons for the detection of these chemicals are the fact that phthalates and chlorinated solvents are man-made chemicals which are frequently used in the production processes of garments or are the result of a degradation product. Phthalates are mainly used as softeners and are in addition used in the printing process. Phthalates can be used in the piping of the production plant that could also result in a possible contamination. Chlorinated solvents are used for cleaning, but also in the process of syntactic fibre dyeing.

FACTORY SPECIFIC REMARKS

FACTORY 3 CHINA

- Influent and effluent water contained the same chemicals groups.
- PFCs were found in the water before treatment. G-Star is working towards phasing out short chain PFCs before 2015. In general, C6 (short chain) water repellent agents might contain a residue of perfluorohexanoic acid (PFHXA). PFHXA can also be used in fire-fighting applications, greases and lubricants, paints and polishes like perfluorooctanoic acid. There is a possibility that the presence of PFHXA was a residue of a brand fire drill.

All and all, the results are too complex to draw conclusion from one report, therefore further investigation is needed to find the source of the chemical.

FACTORY 1 INDIA

The non-disclosed test report showed above average results in the water test batch. Although these first results were above average in this group of suppliers included in the water testing, this is only a snapshot and the supplier will therefore retest under different circumstances. This will allow him to get a decent understanding of the chemical used and its possible effects on the environment. The supplier is committed to maintaining the good standard and is always looking for continuous improvement of its operations.

⁴ Please see column *DL in Wastewater (µg/L) in SH/SZ lab* on page 9 for the detection limits per substance.

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. G-Star determined that heavy metals are present in both the influent and effluent water of all Chinese suppliers. Furthermore, the presence of Chlorinated Solvents and Phthalates at one of the factories in both influent and effluent water are of G-Star's concern.

G-Star will work with the Indian supplier over the coming months and retest the effluent water under different circumstances. As soon as a proper platform for disclosure is available for India, the dialogue on disclosure of water discharge data 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 was an important step of knowledge building, G-Star is aware that still many steps need to be taken to come to zero discharge of hazardous chemicals and understanding the contamination of water by 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 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:

- It is clear that root cause investigation at factory level is necessary. Our Chemical Specialists are working together with the factories to perform a root cause analysis: from chemical inventory and Material Safety Data Sheet investigation, to environmental audits via the ZDHC Joint Roadmap, bluesign technologies ag or our own environmental auditing protocol. G-Star is of the opinion that it is important to work from the beginning of the process (with our own teams, bluesign technologies ag and the ZDHC Joint Roadmap) as well as keeping track of the end of the process (end product testing). Working from both ways is most effective.
- Support our suppliers to publicly disclose their water discharge data via a PRTR platform, for which currently the IPE platform in China is used.
- Finalise and implement a Manufacturing Restricted Substance List throughout our supply chain.
- Work on all of the points of our commitment and ZDHC Joint Roadmap actions.

G-STAR RAW

APPENDIX I
TEST REPORT INTERTEK FACTORY 3 CHINA



g-star.com



Test Report

Number: SHAH0039849802S1

Applicant: G-STAR RAW C.V.
KEIENBERGWEG 100, 1101 GH AMSTERDAM

Date: AUG 26, 2013

THIS IS TO SUPERSEDE REPORT
NO. SHAH0039849802 DATED AUG
07, 2013

Factory:
Factory Code : Factory 3 CH
Address : Changzhou, Jiangsu, China

Sample Description:
No. Of Sample : 5
Reference No. :
Date of Sampling : Jul. 24, 2013

Sample Type:
Sample 1 Input Water, Transparent Liquid, Tap Water, Grab Sample at 15:13
Sample 2 Input Water, Transparent Liquid, Purified Water, Grab Sample at 13:58
Sample 3 Input Water, Light Yellow Liquid, Recycled Water, Grab Sample at 14:53
Sample 4 Output Water, Blue Liquid, Before Treatment, Composite Sample at 13:54,14:13,14:29, 14:46, 15:08, 15:30
Sample 5 Output Water, Yellow Liquid, After Treatment, Composite Sample at 14:14, 14:35, 15:13, 15:30, 14:55, 15:55

Date Received/Date Test Started : Jul. 25, 2013

Tests Conducted:
As Requested By The Applicant, For Details Refer To Attached Page(s).

To be continued

Prepared And Checked By:

Kent Xu
Technical Manager
For Intertek Testing Services Ltd., Shanghai

Authorized By:

Jasmine Zhang
Deputy General Manager
For Intertek Testing Services Ltd., Shanghai



Conclusion:

<u>Test Items</u>	<u>Result</u>				
	(1)	(2)	(3)	(4)	(5)
Azodyes (Banned Aromatic Amines)	D (page 3)	ND	D (page 3)	D (page 3)	ND
Chlorinated Solvents	D (page 4)	D (page 4)	D (page 4)	ND	D (page 4)
Brominated and Chlorinated Flame Retardants	ND	ND	ND	ND	ND
Phthalates	D (page 5)	D (page 5)	D (page 5)	D (page 5)	D (page 5)
Organic Tin Compounds	ND	ND	ND	ND	ND
Chlorophenols	ND	ND	ND	ND	ND
Short-Chain Chlorinated Paraffins (C ₁₀ -C ₁₃)	ND	ND	ND	ND	ND
Heavy Metals	D (page 6)	D (page 6)	D (page 6)	D (page 6)	D (page 6)
Alkylphenol ethoxylates/Alkylphenols(APEOs/APs)	ND	ND	ND	D (page 7)	ND
Perfluorinated Chemicals (PFCs)	ND	ND	ND	D (page 7)	ND
Chlorinated Benzenes	ND	ND	ND	ND	ND
Cyanide	ND	ND	ND	ND	ND

Note: ND = Not Detected
 D = Detected (Please find the specific result on data pages)
 N/A = Not Applicable
 - = Did Not Perform
 * = See Remark
 # = No Comment

To be continued

Prepared And Checked By:



Kent Xu
 Technical Manager
 For Intertek Testing Services Ltd., Shanghai

Authorized By:



Jasmine Zhang
 Deputy General Manager
 For Intertek Testing Services Ltd., Shanghai



Test Report

Number: SHAH0039949802S1

Tests Conducted

1 Detection Of Amines Derived From Azocolourants And Azodyes

With Reference To EN 14362 modified, By Gas Chromatographic - Mass Spectrometric (GC-MS) And High Performance Liquid Chromatographic (HPLC) Analysis.

Compound(s)	Cas No.	Result (µg/L)				
		(1)	(2)	(3)	(4)	(5)
4-Aminodiphenyl	92-67-1	ND	ND	1.8	ND	ND
Benzidine	92-87-5	ND	ND	ND	ND	ND
4-Chloro-o-Toluidine	95-69-2	ND	ND	ND	ND	ND
2-Naphthylamine	91-59-8	ND	ND	ND	ND	ND
o-Aminoazotoluene	97-56-3	ND	ND	ND	ND	ND
2-Amino-4-Nitrotoluene	99-55-8	ND	ND	ND	ND	ND
p-Chloroaniline	106-47-8	0.2	ND	ND	0.8	ND
2,4-Diaminoanisole	615-05-4	ND	ND	ND	ND	ND
4,4'-Diaminodiphenylmethane	101-77-9	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	91-94-1	ND	ND	ND	ND	ND
3,3'-Dimethoxybenzidine	119-90-4	ND	ND	ND	ND	ND
3,3'-Dimethylbenzidine	119-93-7	ND	ND	ND	ND	ND
3,3'-Dimethyl-4,4'diaminodiphenylmethane	838-88-0	ND	ND	ND	ND	ND
p-Cresidine	120-71-8	ND	ND	ND	ND	ND
4,4'-Methylene-Bis(2-Chloroaniline)	101-14-4	ND	ND	ND	ND	ND
4,4'-Oxydianiline	101-80-4	ND	ND	ND	ND	ND
4,4'-Thiodianiline	139-65-1	ND	ND	ND	ND	ND
o-Toluidine	95-53-4	ND	ND	ND	ND	ND
2,4-Toluylenediamine	95-80-7	ND	ND	ND	ND	ND
2,4,5-Trimethylaniline	137-17-7	ND	ND	ND	ND	ND
o-Anisidine	90-04-0	ND	ND	ND	ND	ND
p-Aminoazobenzene	60-09-3	ND	ND	ND	ND	ND
2,4-Xylidine	95-68-1	ND	ND	ND	ND	ND
2,6-Xylidine	87-62-7	ND	ND	ND	ND	ND

Remark: ND= Not detected
 Detection limit = 0.1 µg/L

 To be continued

Test Report

Number: SHAH0039949802S1

Tests Conducted

2 Chlorinated Solvents

By Headspace Gas Chromatography Mass Spectrometric (HS-GC/MS) Analysis.

Compound(s)	Cas No.	Result (µg/L)				
		(1)	(2)	(3)	(4)	(5)
Dichloromethane	75-09-2	ND	ND	ND	ND	ND
Chloroform	67-66-3	63	2	1	ND	2
Tetrachloromethane	56-23-5	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	79-00-5	ND	ND	ND	ND	ND
1,1-dichloroethylene	75-35-4	ND	ND	ND	ND	ND
1,2-dichloroethane	107-06-2	ND	4	4	ND	ND
Trichloroethylene	79-01-6	ND	ND	ND	ND	ND
Perchloroethylene	127-18-4	ND	ND	ND	ND	ND

Remark: ND= Not detected
Detection limit = 1 µg/L

3 Brominated And Chlorinated Flame Retardants

Solvent Extraction And By Liquid Chromatography - Mass Spectrometry (LC-MS) And Gas Chromatography - Mass Spectrometry (GC-MS) Analysis.

Compound(s)	Cas No.	Result (µg/L)					Detection Limit (µg/L)
		(1)	(2)	(3)	(4)	(5)	
Tetra-bromo-diphenyl-ether (Tetra BDE)	40088-47-9	ND	ND	ND	ND	ND	0.2
Penta-bromo-diphenyl-ether (Penta BDE)	32534-81-9	ND	ND	ND	ND	ND	0.2
Hexa-bromo-diphenyl-ether (Hexa BDE)	36483-60-0	ND	ND	ND	ND	ND	0.2
Hepta-bromo-diphenyl-ether (Hepta BDE)	68928-80-3	ND	ND	ND	ND	ND	0.2
Octa-bromo-diphenyl-ether (Octa BDE)	32536-52-0	ND	ND	ND	ND	ND	0.2
Nona-bromo-diphenyl-ether (Nona BDE)	63936-56-1	ND	ND	ND	ND	ND	0.2
Deca-bromo-diphenyl-ether (Deca BDE)	1163-19-5	ND	ND	ND	ND	ND	0.2
Hexa-bromo-cyclo-dodecan (HBCDD)	134237-50-6, 134237-50-7, 134237-52-8	ND	ND	ND	ND	ND	2
Tri-(2,3-di-bromo-propyl)-phosphate (TRIS)	126-72-7	ND	ND	ND	ND	ND	0.5
Tris-(2-chloro-ethyl)-phosphate (TCEP)	115-96-8	ND	ND	ND	ND	ND	0.5

Remark: ND= Not detected

To be continued

Test Report

Number: SHAH0039949802S1

Tests Conducted

4 Phthalates

Solvent Extraction And By Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

<u>Compound(s)</u>	<u>Cas No.</u>	<u>Result (µg/L)</u>				
		(1)	(2)	(3)	(4)	(5)
Di-iso-butyl-phthalate (DIBP)	84-69-5	2.0	2.0	2.0	ND	4.0
Di-butyl-phthalate (DBP)	84-74-2	4.0	2.0	4.0	16.0	9.0
Benzyl-butyl-phthalate (BBP)	85-68-7	ND	ND	ND	ND	ND
2-(ethyl-hexyl)-phthalate (DEHP)	117-81-7	3.0	4.0	4.0	5.0	3.0
Di-n-octyl-phthalate (DNOP)	117-84-0	ND	ND	ND	ND	ND
Di-iso-nonyl-phthalate (DINP)	68515-48-0	93.0	ND	46.0	214	4.0
Di-iso-decyl-phthalate (DIDP)	26761-40-0	ND	ND	ND	ND	ND

Remark: ND= Not detected
Detection limit = 1 µg/L

5 Organic Tin Compounds

With Reference To DIN EN 17353, By Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

<u>Compound(s)</u>	<u>Result (µg/L)</u>				
	(1)	(2)	(3)	(4)	(5)
Tri-butyl-tin (TBT)	ND	ND	ND	ND	ND
Di-butyl-tin (DBT)	ND	ND	ND	ND	ND
Mono-butyl-tin (MBT)	ND	ND	ND	ND	ND
Tri-phenyl-tin (TPhT)	ND	ND	ND	ND	ND
Di-octyl-tin (DOT)	ND	ND	ND	ND	ND

Remark: ND= Not Detected
Detection limit =0.01 µg/L

To be continued

Test Report

Number: SHAH0039949802S1

Tests Conducted

6 Chlorophenols

Solvent Extraction And Acetylated By Acetic Anhydride, And Analyzed By Gas Chromatography-Mass Spectrometry (GC-MS).

<u>Compound(s)</u>	<u>Cas No.</u>	<u>Result (µg/L)</u>				
		(1)	(2)	(3)	(4)	(5)
Pentachlorophenol (PCP)	87-86-5	ND	ND	ND	ND	ND
Tetrachlorophenols (TeCP)	25167-83-3	ND	ND	ND	ND	ND
Trichlorophenols (TriCP)	Various	ND	ND	ND	ND	ND
Dichlorophenol (DiCP)	Various	ND	ND	ND	ND	ND
Monochlorophenol	Various	ND	ND	ND	ND	ND

Remark: ND = Not detected
Detection limit = 0.5 µg/L

7 Short-Chain Chlorinated Paraffins (C₁₀-C₁₃)

Solvent Extraction And By Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

<u>Compound(s)</u>	<u>Cas No.</u>	<u>Result (µg/L)</u>				
		(1)	(2)	(3)	(4)	(5)
Short-chain chlorinated paraffins (C ₁₀ -C ₁₃)	85535-84-8	ND	ND	ND	ND	ND

Remark: ND = Not detected
Detection limit = 10 µg/L

8 Heavy Metals

By Inductively Coupled Argon Plasma-Mass Spectrometry(ICP-MS) Analysis And By Ion Chromatography- Inductively Coupled Argon Plasma-Mass Spectrometry(IC-ICP-MS) Analysis .

<u>Compound(s)</u>	<u>CAS No.</u>	<u>Result (µg/L)</u>					<u>Detection Limit (µg/L)</u>
		(1)	(2)	(3)	(4)	(5)	
Cadmium(Cd)	7440-43-9	ND	ND	ND	ND	ND	0.1
Lead(Pb)	7439-92-1	ND	ND	ND	ND	ND	1
Mercury(Hg)	7439-97-6	ND	ND	ND	ND	ND	0.5
Hexavalent Chromium(Cr-VI)	18540-29-9	ND	ND	ND	ND	ND	1
Nickel (Ni)	7440-02-0	ND	23	20	10	2	1
Copper (Cu)	7440-50-8	1	1	1	11	ND	1
Zinc (Zn)	7440-66-6	2	2	3	87	4	1
Chromium(Cr)	7440-47-3	ND	ND	ND	9	ND	1
Manganese(Mn)	7439-96-5	ND	1	6	85	24	1

Remark: ND = Not detected

To be continued

Tests Conducted

9 Alkylphenol ethoxylates/Alkylphenols(APEOs/APs)

Solvent Extraction And By Gas Chromatography-Mass Spectrometry (GC-MS) And By Liquid Chromatography-Mass Spectrometry (LC-MS/MS) Analysis.

<u>Compound(s)</u>	<u>Result (µg/L)</u>					<u>Detection Limit (µg/L)</u>
	(1)	(2)	(3)	(4)	(5)	
Nonylphenoethoxylates ₃₋₁₈	ND	ND	ND	3.0	ND	2.5
Octylphenoethoxylates ₃₋₁₈	ND	ND	ND	ND	ND	2.5
Nonylphenoethoxylates ₁₊₂	ND	ND	ND	20	ND	5
Octylphenoethoxylates ₁₊₂	ND	ND	ND	ND	ND	5
Nonylphenols (NP)	ND	ND	ND	3.0	ND	1
Octylphenols (OP)	ND	ND	ND	ND	ND	1

Remark: ND = Not detected

10 Perfluorinated Chemicals (PFCs)

By Liquid Chromatography – Mass Spectrometry (LC-MS/MS) Analysis.

<u>Compound(s)</u>	<u>Cas No.</u>	<u>Result (µg/L)</u>				
		(1)	(2)	(3)	(4)	(5)
Perfluoro-octane-sulfonic acid (PFOS)	1763-23-1	ND	ND	ND	ND	ND
Perfluoro-octane-sulfon-amide (PFOSA)	754-96-1	ND	ND	ND	ND	ND
Perfluoro-octane acid (PFOA)	335-67-1	ND	ND	ND	ND	ND
Perfluoro-hexane-sulfonic acid (PFHXS)	355-46-4	ND	ND	ND	ND	ND
Perfluoro-hexanoic acid (PFHXA)	307-24-4	ND	ND	ND	2.0	ND
Perfluoro-butanoic acid (PFBA)	375-22-4	ND	ND	ND	ND	ND
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ND	ND	ND	ND	ND

Remark: ND = Not detected
 Detection limit = 0.2 µg/L

To be continued

Test Report

Number: SHAH0039949802S1

Tests Conducted

11 Chlorinated Benzenes

Solvent Extraction And Followed By Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

<u>Compound(s)</u>	<u>Cas No.</u>	<u>Result(µg/L)</u>				
		(1)	(2)	(3)	(4)	(5)
Dichlorobenzene	various	ND	ND	ND	ND	ND
Trichlorobenzenes	various	ND	ND	ND	ND	ND
Tetrachlorobenzenes	various	ND	ND	ND	ND	ND
Pentachlorobenzenes	608-93-5	ND	ND	ND	ND	ND
Hexachlorobenenes	118-74-1	ND	ND	ND	ND	ND
Chlorobenzene	108-90-7	ND	ND	ND	ND	ND

Remark: ND = Not detected
 Detection limit = 0.02 µg/L

12 Cyanide

With Reference To HJ 484 By Spectrophotometer Analysis.

<u>Compound(s)</u>	<u>Result(mg/L)</u>				
	(1)	(2)	(3)	(4)	(5)
Cyanide	ND	ND	ND	ND	ND

Remarks: Detection limit = 0.004 mg/L
 ND = Not detected

Testing Period: Jul. 25, 2013 To Aug. 07, 2013

To be continued

Photo of Samples:



End of report

This report is made solely on the basis of instructions and/or information and materials supplied by you (the Client). It is not intended to be a recommendation for any specific course of action. Intertek shall not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as that which is expressly contained in the terms and conditions governing the provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent, truthful and careful basis and we do not accept any liability to you for any direct or in-direct loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.



To: G-STAR RAW C.V.

Attention:

Date: AUG 26, 2013

Re: Report Revision Notification

Intertek Testing Services Report Number SHAH0039849802 Dated Aug. 07, 2013.

Please Be Informed That All The Content Recorded In The Above Captioned Report Will Be Void. This Captioned Report Is Now Superseded By A Revised Intertek Testing Services Report Number SHAH0039849802S1

Please Return The Original Captioned Report To Us Immediately.

Thank You For Your Attention.

Prepared And Checked By:

Kent Xu
Technical Manager
For Intertek Testing Services Ltd., Shanghai

Authorized By:

Jasmine Zhang
Deputy General Manager
For Intertek Testing Services Ltd., Shanghai



Intertek Testing Services Ltd., Shanghai

Block B, Jinling Business Square, No.801 YiShan Road, Shanghai, China. 200233

上海天祥質量技術服務有限公司

上海市宜山路 801 號金陵商務廣場 B 座 200233

Telephone: +86 21 6120 6060 Facsimile: +86 21 6127 9740

www.intertek.com www.intertek.com.cn

