

## ***China pilot III summary: PFCs investigation***

### ***Summary***

Primark has a stringent chemical management policy in place which complies fully with EU and US legislation. Beyond this, Primark recognises the importance of continuing to evolve its chemical management policy in line with industry best practice and of continuing to minimise the environmental impact of textile manufacturing processes. As a result, Primark has committed to working with industry and other stakeholders to achieve the goal of 'zero discharge' of hazardous chemicals within the textile and apparel supply chain by 2020. The detail of this is outlined in Primark's Detox Commitment<sup>1</sup>.

Working with strategic suppliers, Primark initiated a deep-dive pilot project in 2014 in China involving six mills within its supply chain<sup>2</sup>. This pilot has been extended in 2015 to four additional mills linked to these same suppliers to gather additional insight into chemical usage and management practices. All four of these mills were dyeing units.

In 2015, we also decided to strengthen our approach on Perfluorinated compounds (PFCs). PFC's are a group of chemicals used to provide water, stain and oil repellent performance on product. Questionnaires were sent to all of our suppliers manufacturing targeted types of product to evaluate the current use of these substances and a pilot was implemented in China with three mills working with some of our key suppliers.

The pilot aimed to identify chemicals present in the effluent discharges from the mills (with a particular focus on current compliance levels regarding PFCs) and to assess current chemical management practices within wet processing units. Findings are being used to inform a longer term programme of supplier engagement and chemical phase out.

PFCs were not found in the effluents of any of the mills and, in most cases, other restricted chemicals were either not detected or below the 1ppm<sup>3</sup> level. Such levels are generally considered very low in terms of dyehouse effluent. The levels detected in the effluent are not directly related to end product compliance, which is assured by our [Restricted Substances List](#)<sup>4</sup> (RSL) and due diligence testing programme.

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<sup>1</sup> Please refer to [Primark's Detox Commitment](#)

<sup>2</sup> These mills are not owned by Primark and are producing fabric for several brands, including Primark.

<sup>3</sup> 1ppm is 1 part per million. This is equivalent to 1 milligram per litre (mg/l)

<sup>4</sup> A Restricted Substance List gathers all the substances subject to a ban or restricted levels in final products and packaging.

## Methodology

Independent testing, inspection and certification provider Bureau Veritas was selected as the third party laboratory to test water samples from each factory. Our other project partner on this pilot as the chemical management audit expert was Huntsman Textile Service (HTS), an active advisor to the ZDHC group<sup>5</sup>.

1. Technicians from Bureau Veritas visited each factory to collect samples of incoming water, wastewater before treatment and wastewater after treatment where in-house effluent treatment plants<sup>6</sup> (ETP) were available. In cases where no ETP facilities were available, only two samples were collected: incoming water and discharge water. These samples were tested for 117 chemical analytes of concern within the 11 priority classes of hazardous chemicals.
2. HTS requested the facilities send them mandatory documents at least a week prior to the audit date<sup>7</sup>.
3. Auditors from HTS then visited the production sites to review all the documentation with the facility staff and then to audit all manufacturing processes, storage area, lab, waste water treatment plant if any, etc., during a factory site tour with the site management.
4. HTS also reviewed the water analysis data provided by Bureau Veritas in order to identify potential sources of hazardous chemicals detected in the samples and to advise on possible steps to ensure their elimination.
5. Corrective Action Plans (CAP) were shared with the mills, outlining general improvement areas in relation to chemical management practices and recommending specific chemical substitutions in order to switch to safer alternatives.

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<sup>5</sup> Primark is member of [ZDHC](#) (Zero Discharge of Hazardous Chemicals), a group of major apparel and footwear brands and retailers working collaboratively to help lead the industry towards zero discharge of hazardous chemicals by 2020.

<sup>6</sup> Effluent Treatment Plant: facility used to clean the contaminated waste waters from the mills before being released.

<sup>7</sup> See Appendix 1

## Results

Of the three mills participating in the pilot, two had their own ETP and one had no ETP.

**The following chemicals were not detected in any of the samples at the mills:**

Priority Chemical Groups	Incoming water	Water before treatment	Water after treatment
PFCs	ND	ND	ND
Brominated and Chlorinated Flame Retardants	ND	ND	ND
Azo Dyes	ND	ND	ND
Organotin Compounds	ND	ND	ND
Short-chained Chlorinated paraffin's	ND	ND	ND
Chlorobenzenes	ND	ND	ND
Chlorophenols	ND	ND	ND

**The following chemicals were found in the samples of the following number of mills<sup>8</sup>:**

Priority Chemical Groups	No. of mills where chemical was found in inlet water	No. of mills where chemical was found in water before treatment	No. of mills where chemical was found in water after treatment
APs and APEOs	0	2	0
Phthalates	0	3	1
Total Heavy Metals	1	3	2
Chlorinated Solvents	0	1	0

<sup>8</sup> With a reporting limit of 0.01ppm.

## **Effluent results summary**

### **APEOs**

Effluent of two mills was found to contain APEO at levels below 1 ppm.

### **Phthalates**

Effluent of three mills was found to contain phthalates at levels below 1 ppm.

### **Total Heavy metals**

Heavy metals were found in the effluent of all three mills but in each case at levels below 1 ppm.

### **Chlorinated solvents**

One analyte of Chlorinated solvents was found in the waste water before treatment of one of the mills.

PFCs, substances targeted in this pilot, were not found in the effluents of any mill.

Other substances of concern however were detected, but in most cases the chemicals were either below the 1ppm level, or not detected at all. Such levels (1 ppm and below) are generally considered very low in terms of dyehouse effluent. Only one incidence was found above the 1ppm level in one mill's waste water before treatment, the same chemical was not detected in the waste water after treatment.

The levels detected in the effluent are not directly related to end product compliance, which is assured by our Restricted Substances List (RSL) and due diligence testing programme.

All of the above chemical groups are included within Primark's Restricted Substances List (RSL) and have been prioritized for phase out from the supply chain. Primark is continuing to work with the mills who participated in the pilot to identify how the detected chemicals can be phased out and substituted for safer alternatives.

## Next steps

Insight from the pilot has identified the following priority areas for action, both at the pilot mills and within the broader supply base as part of a long term programme:

1. Raise awareness of the need for and the benefits of chemical management at all levels of the supply chain
2. Provide comprehensive training and support on chemical management to suppliers, with a particular focus on wet processing units. The training programme should be tailored to take into account the differences across manufacturing regions, production processes and job roles
3. Through on-going supplier engagement and training, ensure effective phase out of chemicals which contribute to the detected levels of hazardous chemicals in the effluent and, in turn, ensure these are substituted through the sustainable phase-in of safer alternatives
4. Track the aforementioned substitutions and test their effectiveness through follow-up visits and on-going wastewater analysis
5. Ask suppliers to subsequently engage with their chemical suppliers to ensure compliance to the brand RSL and provision of all relevant documentation to support procurement of all chemical formulations
6. Promote purchases of chemicals that conform to the [ZDHC MRSL](#)<sup>9</sup>
7. Beyond chemical management, engage suppliers to set up and implement an effective environmental management system that includes assigning ownership of all EHS (Environmental Health and Safety) aspects within the factory to dedicated personnel and the provision of necessary EHS training to support this role

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<sup>9</sup> THE ZDHC Manufacturing Restricted Substance List (MRSL) is a list of chemical substances subject to a usage ban in facilities that process textile materials and trim parts for use in apparel and footwear.



## Appendix 1

### List of the documents requested by Huntsman Textile Service:

#### Mandatory documentation

- Facility Chemical Inventory List (CIL)
- Management Organization Chart
- Layout of site, and drainage pipeline including domestic and industrial sewage, and sewer etc.
- Standard Operating Procedures (SOP) for chemicals procurement, requisition, safety handling, disposal, spills, containment, etc.
- Chemical Compliance Confirmation (template) of ZHDC MRSL, etc. to be confirmed by suppliers
- Facility MRSL / RSL
- Chemical Training Records on above SOP implementation.
- Applicable licenses and permits such as water, air emissions, waste discharge, etc.
- Emission Sources inventories to air, land, and water
- Air Emission, waste effluent, waste disposal data
- Chemical risk assessments
- Survey or inspection report on use of PCB, asbestos, mercury, and ODS within the facility.
- Water source data and Energy use data
- Bulk Tank Storage Inventory
- Sample test report(s)

#### Documentation for on-site review

- MSDS for chemical inventory
- Inventory of chemicals and chemical usage records
- Chemical management training, emergency drill record

#### Other optional documentation

- Contract / written agreement with subcontractors for facility and/or equipment cleaning and maintenance
- Environment Policies.
- Nuisance / Complaints log
- Notices of Violation / Fines from a regulatory body
- Spill or incident release records. Notifications to regulatory authorities on accidents/spills etc.

## Appendix 2

### Test results for APEO, Phthalates, Heavy Metals and Chlorinated Solvents:

Key:

1001-Incoming water mg/l

1002-Production outlet mg/l

1003-Wastewater discharge mg/l

ND – Not Detected i.e. not present above 10ppb\*

#### APEOs:

	1001	1002	1003
<b>Mill 1</b>			
<b>NP</b>	ND	0.034	ND
<b>OPEOs</b>	ND	ND	ND
<b>NPEOs</b>	ND	0.0841	ND
<b>Mill 2</b>			
<b>All APEOs</b>	ND	ND	ND
<b>Mill 3</b>			
<b>NP</b>	ND	0.0292	0.0176
<b>NPEOs</b>	ND	0.219	ND

\*ppb = part per billion. Parts per billion (ppb) is the number of units of mass of a contaminant per 1000 million units of total mass. 1ppb=0.001ppm.

**Phthalates:**

	I001	I002	I003
<b>Mill 1</b>			
DEHP	ND	0.0176	0.0216
<b>Mill 2</b>			
DEHP	ND	0.03	NA
<b>Mill 3</b>			
DBP	ND	ND	ND
DEHP	ND	0.178	ND
DIBP	ND	ND	ND

**Heavy Metals:**

	I001	I002	I003
<b>Mill 1</b>			
Pb	ND	0.0270	ND
Sb	ND	0.0537	0.0164
Co	ND	0.0130	ND
Ni	ND	0.0809	ND
Cu	ND	0.133	ND
Zn	0.0686	0.500	0.0855
Cr	ND	0.0608	ND
Mn	ND	0.611	0.0869
<b>Mill 2</b>			
Co	ND	0.0151	NA
Cu	ND	0.0285	NA
Zn	ND	0.0250	NA
Cr	ND	0.0719	NA
Mn	ND	0.0312	NA



Mill 3			
Sb	0.0141	0.141	0.263
Ni	ND	0.02	0.0619
Cu	ND	0.0264	ND
Zn	0.0512	0.556	ND
Cr	ND	0.0122	ND
Mn	ND	0.0790	0.110

**Chlorinated Solvents:**

	I001	I002	I003
Mill 1			
All Chlorinated Solvents	ND	ND	ND
Mill 2			
All Chlorinated Solvents	ND	ND	NA
Mill 3			
Methylene Chloride	ND	2.02	NA