Bangladesh pilot summary: Investigation into current chemical compliance

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[1].

Working with strategic suppliers, Primark initiated a deep-dive pilot project in 2014 in China involving six mills within its supply chain[2]. In 2015, Primark extended this pilot to include an additional four mills linked to these same suppliers and to five factories in Bangladesh in order to gather additional insight into chemical usage and management practices.

In Bangladesh, all five of these factories carry out dyeing and printing processes. The pilot aimed to identify chemicals present in the effluent discharges from the factories and to assess current chemical management practices within wet processing units. All the factories participating in the pilot produce t-shirts and the pilot focused particularly on Phthalates, one of the highest priority chemical groups for phase out, as t-shirts that use plastisol prints require a certain type of printing process that may contain Phthalates.

Results from the pilot are being used to develop a longer term programme of supplier engagement and chemical phase out.

Phthalates were not detected in the effluent of any of the factories. In many cases chemicals (including APEOs, Chlorophenols and Chlorobenzenes) were not detected or, for those that were detected, were well below the 1ppm[3] 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[4] (RSL) and due diligence testing programme.

[1] Please refer to Primark's Detox Commitment

[2] These mills are not owned by Primark and are producing fabric for several brands, including Primark.

[3] 1ppm is 1 part per million. This is equivalent to 1 milligram per litre (mg/l)

[4] 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 and environmental auditing and consultancy firm Sustainable Textile Solutions[5] (STS), an active advisor to the ZDHC group[6], were selected as project partners. Bureau Veritas served as the third party laboratory to test water samples from each factory, while STS specialises in environmental management audits, including chemical management.

1. Technicians from Bureau Veritas visited each factory to collect samples of incoming water, wastewater before treatment and wastewater after treatment. These samples were tested for 117 chemical analytes of concern within the 11 priority classes of hazardous chemicals.

2. Auditors from STS visited the production sites to document the chemical inventory, collect recipes of production during the sampling period and track the chemicals used during production.

3. STS then reviewed the water and sludge 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.

4. Corrective Action Plans (CAP) were prepared for and 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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[5] Sustainable Textile Solutions (STS) is a trademark of DyStar Colours Distribution GmbH.
[6] 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.

Results

All the factories participating in the pilot had a printing and dyeing unit and their own ETP[7].

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

Priority Chemical Groups	Inlet water	Water before treatment	Water after treatment
Phthalates	ND	ND	ND
APs and APEOs	ND	ND	ND
PFCs	ND	ND	ND
Azo Dyes	ND	ND	ND
Chlorinated Solvents	ND	ND	ND
Chlorophenols	ND	ND	ND
Chlorobenzenes	ND	ND	ND
Organotin Compounds	ND	ND	ND
Short-Chained Chlorinated Paraffins	ND	ND	ND
Brominated and Chlorinated Flame Retardants	ND	ND	ND

The following chemicals were found in the samples of the following number of mills:

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
Total Heavy Metals	3	4	4

[7] Effluent Treatment Plant: facility used to clean the contaminated waste waters from the mills before being released.

Effluent results summary

APEOs

APEOs were not detected in the effluent of any factory.

Phthalates

Phthalates were not detected in the effluent of any factory.

PFCs

PFCs were not detected in the effluent of any factory.

Total Heavy metals

Heavy metals were found in the effluent of 5 factories but in each case at levels below 1 ppm in the waste waters.

In many cases the chemicals were either not detected or well below the 1ppm level. Such levels are generally considered very low in terms of dyehouse effluent.

Only 3 types of heavy metals were found in the waste water after treatment in the different factories but all below 1ppm (manganese, copper and zinc). Often, heavy metals were also found in the incoming water.

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 factories who participated in the pilot to identify how the detected chemicals can be phased out and how safer alternatives can be effectively phased in.

Next steps

Insight from the pilot has identified the following priority areas for action, both at the pilot factories 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 i.) ensure compliance to the Primark's current RSL and the ZDHC MRSL[8] and to ii.) ask them to provide all relevant documentation to support procurement of all chemical formulations being purchased and used, including the MSDS[9]
6. 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
7. The presence of Heavy Metals in the incoming water needs to be investigated further. As a first step, Primark and STS have raised the issue with the Partnership for Cleaner Textile (PaCT) programme currently running in Bangladesh[10] to see if it could be further investigated through this forum.

[8] 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.
[9] A Material Safety Data Sheet (MSDS) must be available for all chemicals.
[10] Primark and other fashion brands and retailers are partnering with Solidaridad on PaCT. More information available here: http://www.textilepact.net/

Appendix 1

Test results for Heavy Metals

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[11]

	I001	I002	I003
Mill 1			
As	ND	ND	ND
Pb	ND	0.012	ND
Sb	0.027	0.094	ND
Co	ND	ND	ND
Ni	ND	ND	ND
Cu	0.040	0.126	0.048
Zn	ND	0.409	0.024
Cr	ND	ND	ND
Mn	0.085	0.106	ND
CN	ND	ND	ND
Cd	ND	ND	ND
Hg	ND	ND	ND
Cr VI	ND	ND	ND

[11] *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.*

Mill 2			
As	ND	ND	ND
Pb	ND	ND	ND
Sb	ND	0.02	ND
Co	ND	ND	ND
Ni	ND	ND	ND
Cu	ND	0.031	ND
Zn	ND	ND	ND
Cr	ND	ND	ND
Mn	ND	ND	0.034
CN	ND	0.0425	ND
Cd	ND	ND	ND
Hg	ND	ND	ND
Cr VI	ND	ND	ND
Mill 3			
As	ND	ND	ND
Pb	ND	ND	ND
Sb	ND	ND	ND
Co	ND	ND	ND
Ni	ND	ND	ND
Cu	ND	ND	ND
Zn	ND	ND	ND
Cr	ND	ND	ND

Mn	0.014	0.013	0.122
CN	ND	ND	ND
Cd	ND	ND	ND
Hg	ND	ND	ND
Cr VI	ND	ND	ND
Mill 4			
As	ND	ND	ND
Pb	ND	ND	ND
Sb	ND	ND	ND
Co	ND	ND	ND
Ni	ND	ND	ND
Cu	0.071	0.078	0.052
Zn	0.083	0.099	ND
Cr	ND	ND	ND
Mn	0.019	0.089	ND
CN	ND	ND	ND
Cd	ND	ND	ND
Hg	ND	ND	ND
Cr VI	ND	ND	ND
Mill 5			
As	ND	ND	ND
Pb	0.010	ND	ND
Sb	ND	ND	ND

Co	ND	ND	ND
Ni	ND	ND	ND
Cu	ND	ND	0.037
Zn	0.016	0.011	0.023
Cr	ND	ND	ND
Mn	ND	0.017	0.016
Cd	ND	ND	ND
Hg	ND	ND	ND
Cr VI	ND	ND	ND