Case study: chemical substitution (Chlorophenol)

This case study outlines how a disperse dye, used in textile dyeing, which contains traces of chlorophenols and chlorobenzenes can be substituted.

Primark has a stringent chemical management policy in place which complies fully with, and goes beyond, EU 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.

In line with this, a pilot study was conducted to assess current chemical usage and to identify issues related to chemical management practices in a selected Chinese textile dyeing mill. During the pilot, effluent testing was conducted and traces of chlorophenols and chlorobenzenes were detected.

Through discussions with the mill and its chemical supplier, a particular disperse dye, based on CI Disperse Orange 30, was identified as the possible source of these traces. After testing the dye, it was confirmed as the source and the decision was made to find a suitable alternative in order to phase-out the dye. Primark is supporting the mill to ensure a safer alternative is effectively phased in.

Chlorophenols and chlorobenzenes have been identified as hazardous substances. As a result, many of these chemicals are subjected to national and supranational legislations (e.g. REACH and the Stockholm Convention) and brand restricted substances list (RSL). Primark has identified both chlorophenols and chlorobenzenes as priority chemicals for elimination and these are included within the brand's RSL.

By working together with Sustainable Textile Solutions (STS), a suitable alternative called 'Dianix® Yellow Brown S-4R 150%' was identified which is based on a different chemical compound to CI Disperse Orange 30. Dianix® Yellow Brown S-4R 150% is also approved by Bluesign and as such is safe to use according to the strictest chemical requirements.

CI Disperse Orange 30 is used for dyeing polyester and is a common component in many trichromatic shades. Dianix® Yellow Brown S-4R 150% is a suitable alternative as it offers the same shade. Whilst the alternative is currently available for a slightly higher cost, the new dyestuff enables the mill to be compliant with brand and governmental requirements in relation to chlorophenols and chlorobenzenes.

Dianix is a trademark of DyStar Colours Distribution GmbH