

Case Study – Substituting PFC

1. Background and target

In December 2015, Kaufland signed up to Greenpeace's DETOX campaign with a pledge to eliminate environmentally hazardous chemicals from its own brands/imports in the footwear, apparel and home textile ranges by 2020. Visit www.kaufland.com/detox to read the DETOX commitment and DETOX report.

With signing the DETOX commitment, Kaufland has undertaken to stop using per- and polyfluorinated alkyl substances (PFAS), also known as perfluorinated tensides (PFT) or perfluorinated chemicals (PFC), and to replace these with more environmentally friendly alternatives.

PFC are surface-active organic substances which are only produced by synthetic means. They are used in a wide range of products such as textiles, carpets and cosmetics due to their dirt, grease and water-repellent properties. However, they are more or less non-biodegradable, carcinogenic and accumulate in the environment, in living organisms and in the food chain.¹

This case study examines the case of a supplier in China where wet processing processes have been optimised by replacing PFC with more environmentally friendly alternatives.

2. Case study: Textile producer in China

The supplier selected for the case study is a manufacturer of leisurewear for Kaufland in Fujian Province in China. Wet processes such as dyeing, printing and washing are outsourced to a supplier's facility.

With signing the Kaufland DETOX commitment in February 2016, the supplier had agreed to eliminate the 11 hazardous chemical groups specified in the commitment from its production processes (wet processes) and end products by 2020. Kaufland provides, carries out or coordinates appropriate training sessions, regular water tests and analyses, plus audits and consulting sessions, with a view to achieving this aim.

¹ source: <http://www.eurofins.de/food-analysis/analytical-testing/perfluorinated-compounds/>

2.1 Water test results

A test institute commissioned by Kaufland took individual water samples from the incoming and wastewater to carry out water tests in the supplier's wet process facilities.

On-site observations:

- The wet process facility has an existing procedure for wastewater, which is discharged to a public water treatment plant

PFC is not detected when the water tests were carried out. The result of the wastewater test was published on the IPE website.

PFC	Incoming water	Wastewater	Detection threshold
Perfluorooctanoic acid (PFOA)	Not detected	Not detected	0.00001 ppm
Perfluorooctane sulfonate (PFOS)	Not detected	Not detected	0.00001 ppm
Perfluorohexanoic acid (PFHxA)	Not detected	Not detected	0.00001 ppm
Perfluorohexane sulfonate (PFHxS)	Not detected	Not detected	0.00001 ppm
Perfluorobutanoic acid (PFBA)	Not detected	Not detected	0.00001 ppm
Perfluorobutane sulfonate (PFBS)	Not detected	Not detected	0.00001 ppm

Table 1: Water test results for PFC

2.2 Results of the DETOX audit and proposed solutions

The Kaufland DETOX audit was performed by Kaufland's own DETOX auditors from 5th-6th September 2016. All negative findings were recorded in a management action plan with instructions to rectify the situation within a given timescale. The wet process facility received an individual action plan at the end of the Kaufland DETOX audit. Kaufland also assists the supplier by providing external expertise. Chemical experts offer the plants advice on their chemical management systems and suggest possible solutions with a view rectifying any discrepancies observed and eliminating critical chemicals from the production process completely.

Observations and proposed improvements with regard to PFC: Although no PFC were detected in the samples taken by Kaufland from either the incoming water or the untreated wastewater, the wet process facility uses more than 10 hydrophobic (water-repellent) substances, including C8 and C6 PFC. Possible substitutes that do not contain PFC were discussed with the wet process facility in this particular case.

The following PFC-free alternatives were suggested to the facility as potential substitutes:

- BIONIC-FINISH® ECO, e.g. ®RUCO-DRY ECO PLUS produced by the Rudolf Group
- AD-9 from Dymeric® was suggested as a more environmentally friendly water-repellent substance
- Water-repellent Scotchgard™ PM-3705 from 3M

3. Next steps

In the future, more water tests will be carried out annually at the wet process facility in China by a test institute engaged for this purpose. One year after the initial audit, a DETOX re-audit will also be performed to check that the proposed improvements in the wet process facility have been implemented.

Regular exchanges between the supplier and the wet process facility will take place, with regular chemical inventory updates.

Kaufland is working together with external experts and the chemical industry to draw up a positive list of environmentally friendly chemicals. This list will be gradually extended so that the plants/wet process facilities can be offered alternatives for the substitution process. A positive list of wet process facilities will also be provided. The water tests and Kaufland DETOX audits show which wet process facilities are able to meet the DETOX requirements and where there is still potential for improvement. In turn, this will allow Kaufland to identify the need for further training and advice. Wet process facilities that produce products in accordance with DETOX standards and successfully meet the requirements are identified to Kaufland suppliers as "best practice" companies.

All suppliers are also offered training material, including leaflets such as: "What is PFC?", "Hazards Associated with PFC", "Kaufland's Rules and Requirements", "PFC Sources in Footwear and Clothing", "Handling of PFC" and "Substituting of PFC".