G-STAR RAW

REPORT ON APEO ELIMINATION POLICY
PART OF THE G-STAR ZERO DISCHARGE OF HAZARDOUS CHEMICALS COMMITMENT

AUGUST 2013

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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. 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 roadmap includes 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.

REPORT ON APEO ELIMINATION POLICY

In line with our Detox solution commitment, G-Star recognises the intrinsic hazardousness of all Alkyphenol Ethoxylates (APEOs), and therefore acknowledges it is a priority to eliminate their use across our global supply chain. We understand that there are multiple supply-chain pathways for potential APEO contamination (including chemical formulations) and will enhance both training and auditing of our supply-chain in conjunction with other global brands, as well as ensure our suppliers have the latest information on APEOs, highlighting where there is a risk that APEOs may enter into the undocumented contamination of chemical supplier formulations.
In addition to these actions, G-Star has enforced its APEO ban by initiating an investigation into the compliance to this requirement in our supply chain from January till August 2013. Through this report we share the findings into our investigation on the APEO ban as well as actions taken in ensuring APEO-free chemical formulations are utilized.

DESCRIPTION APEOS[1]

APEOs and their derivatives are a group of man-made chemicals that do not occur naturally. They are synthetic non-ionic surfactants used in some detergents and cleaning products. Surfactants are a functional class of

[1] Textile Exchange, *Textile Exchange Chemical Snapshot*, Alkylphenols & Alkyphenol Ethoxylates (AP & APEOs), Version 2 – January 2013.

chemicals that provide increased surface activity and reduce the surface tension of water, allowing easier spreading, wetting and better mixing of liquids.
APEOs, especially Nonylphenol Ethxylates (NPEOs) are widely used and important surfactants for more than fifty years. They are used as wetting agents, emulsifiers, and dispersants in paints and coatings, residual and commercial cleaning products, in crop protection chemicals and textile manufacturing and pulp and paper processing.
In our industry they are commonly used as detergents in the textile wet processing industry but they are also used in small quantities as emulsifiers or wetting agents in some dyestuff and pigment preparations.
APEOs can degrade back to Alkylphenols (Aps), which are persistent, bioaccumulative, toxic and able to act as hormone disruptors.

LEGAL RESTRICTIONS[2]

In Europe the marketing and use of Nonylphenol (NP) and NPEOs is restricted. It is prohibited to market substances or preparations containing AP or APEOs in concentration higher than 0.1% or higher by mass (1000 ppm), intended for any of the applications including industrial and institutional cleaning, domestic cleaning, textile and leather processing, personal care products, manufacturing of pulp and paper. In USA the Environmental Protection Agency (EPA) has developed an action plan including both voluntary and regulatory actions to manage potential risks from NP and NPEOs and work towards a phase out of these chemical substances. In China NP ad NPEOS are not regulated.

G-Star has set an APEO ban in its RSL since July 2012 after determining that APEO-free alternatives are available in the market.

APEO INVESTIGATION

The phase out of APEO started in February 2012 by communicating to all our suppliers the need to source APEO/NPEO-free preparations and indicate possible sources of APEO.
In July 2012 this was followed by an APEO ban in our public RSL and the confirmation of our suppliers to enforce this ban. In our communications we also requested our suppliers to further communicate throughout their own supply chains and their chemical companies the need to source APEO/NPEO-free detergents. The ban was followed up by our own internal RSL compliance process; meaning an investigation into the APEO use of all our direct suppliers.
In January 2013 G-Star further strengthened the testing program on this specific chemical group by increasing the amount of product testing on APEO/NPEOs and conducting water testing[3] searching for possible traces of the 11 priority chemicals[4]. These steps have been extended towards the material and wet processing suppliers. Simultaneously all our suppliers have received another communication request for chemical inventory and where necessary followed by a visit by our internal Chemical Specialists to support them with our APEOs/NPEOs ban from our garments and production processes.

During the supplier visits by our Chemical Specialists, tailor made advice is given based on the testing results and on the ground root cause investigations on chemicals used. An example of our root cause investigations can be found under APEO Case study in this report.

In June 2013 another G-Star supplier round table was organized in China and Bangladesh to discuss our commitment to ZDHC as we have seen that training, sharing our goal and working together with our suppliers intensively provides the best results.

APEO CASE STUDY

A Case study on Subsport can be found titled: "An alternative to APEO to reduce yellowing in polyamide, polyester and their blends with elastane fibers during heat-setting".This case story describes the substitution of APEOs in the textile industry. The company performed an investigation of possibilities to substitute APEOs

[2] Textile Exchange, *Textile Exchange Chemical Snapshot*, Alkylphenols & Alkyphenol Ethoxylates (AP & APEOs), Version 2 – January 2013.
[3] Please visit the G-Star website to view the Water Discharge Report I.
4 The 11 priority hazardous chemical groups are : 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 10. Short chain chlorinated paraffins 11. Heavy metals such as cadmium, lead, mercury and chromium (VI).

for reducing yellowing in polyamide, polyester and their blends with elastane fibres during heat-setting. They identified and implemented fatty alcohol polyglycol ether as a suitable alternative.

More case studies will follow via the Subsport website.

CONCLUSION

All and all, from the research we can conclude that our direct suppliers have been able to trace back the APEO source, buy APEO-free chemicals from their suppliers and did not have major challenges with the APEO requirements. The main source of use of APEO was at the level of the material suppliers. We now focus on supporting the ban at the level of the material suppliers. In some cases traces of APEOs are still found at our material suppliers where high amounts were found before and this needs further follow up actions to understand the root cause and to enforce our ban.

For other actions towards ZDHC we refer to our action plan and the ZDHC Joint Roadmap.


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