

ELIMINATION OF NONYLPHENOL ETHOXYLATES IN THE TEXTILE INDUSTRY

The [latest research](#) into water pollution reveals the presence of toxic chemicals. The research report indicates strong evidence that endocrine -disrupting chemicals, nonylphenol ethoxylates (NPEs), were applied during the production of textile products and found as residues in the textile products. Therefore, textile industries are taking immediate action to eliminate the use of NPEs from their supply chains.

Nonylphenol ethoxylates (NPEs) are often used as nonionic surfactants, detergents and stabilizers in wetting agents, dispersants, emulsifiers, solubilizers and foaming agents. NPEs are of major importance for wet processing in the textile industry. NPEs in the environment will subsequently break down to form toxic Nonylphenol (NP). NP is very persistent and difficult to degrade in nature. NP also is an endocrine disruptor in aqueous environments, meaning it may have adverse effects on the workings of the endocrine system (e.g hormone) in animals. It tends to accumulate in the tissues of fish and other aquatic organisms, and subsequently magnify throughout the food chain. Recently, NP also has been found in human tissue. The endocrine -disrupting property of NP may cause the feminization in some male fish and consequently may reduce the population of fish.

In response to the toxic effect of NPEs and NP to the environment, the manufacture, use and release of NP and NPEs have been regulated in some regions for many years, for example Germany and the European Union. Recently, NP and NPEs appear on China's published list of toxic chemicals. This severely restricts the import and export of NP and NPEs in China. Highlights of the scope and requirements for NPEs and NP under [Annex XVII](#) of the REACH Regulation (EC) No 1907/2006¹ are summarized in Table 1.



¹ [List of Toxic Chemicals Severely Restricted for Import and Export in China 2011. Ministry of Environmental protection \(MEP\). The People's Republic of China.](#)

TABLE 1.

SUBSTANCE	REGULATION	SCOPE	REQUIREMENT
Nonylphenol (NPs) & Nonylphenol Ethoxylates (NPEs)	Annex XVII of REACH Regulation (EC) No 1907/2006	May not be placed on the market or used as a substance or constituent of preparations for the following purposes: (1) industrial and institutional cleaning except: • controlled closed dry cleaning systems where the washing liquid is recycled or incinerated, • cleaning systems with special treatment where the washing liquid is recycled or incinerated; (2) domestic cleaning; (3) textiles and leather processing except: • processing with no release into waste water, • systems with special treatment where the process water is pretreated to remove the organic fraction completely prior to biological waste water treatment (degreasing of sheepskin); (4) emulsifier in agricultural teat dips; (5) metal working except: • uses in controlled closed systems where the washing liquid is recycled or incinerated; (6) manufacturing of pulp and paper; (7) cosmetic products; (8) other personal care products except: • spermicides; (9) co-formulants in pesticides and biocides.	0.1 % by weight (1000ppm)

On 2 September 2011, Sweden proposed a restriction on textile and leather articles containing 4-Nonylphenol, branched, Nonylphenol or Nonylphenol ethoxylates². According to ECHA restriction process, the restriction dossiers with information on hazards and risks, alternatives and a justification for restrictions at an EU-wide level should be submitted within 12 months. The proposed restriction will undergo consultation and eventually be adopted by European Commission and published in the Official Journal as an amendment Annex XVII of the REACH³.

SOLUTION

In order to commit to the elimination of all discharges of NPEs from the supply chain and textile products, the most effective way is to eliminate the usage of NPEs in production. Possible precautionary approaches are: chemical management across the entire supply chain manage the whole product lifecycle and releases from all pathways, and use safe and possible NPEs alternatives⁴ (such as, alcohol ethoxylates and glucose-based carbohydrate derivatives, etc)

There are many other chemicals that are potentially harmful to the environment and public exposure. This has created new challenges for apparel and footwear companies in implementing a unified and integrated approach to the requirements of worldwide consumer product regulations, recognized industrial standards, chemical specifications and the release of hazardous chemicals throughout the entire supply chain.

² [Registry of intentions for Annex XV dossiers](#)

³ [ECHA Restriction process](#)

⁴ [US EPA Nonylphenol \(NP\) and Nonylphenol Ethoxylates \(NPEs\) Action Plan](#)

SGS provides you a holistic approach in helping the entire supply chain understand the importance of safe use of chemicals, develop and implement a customized upstream chemical management system, and identify the opportunities to prevent the introduction of restricted substances in the supply chain.

For more information, please feel free to contact us or visit www.softlines.sgs.com.



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