Fact Sheet APEOs

Alphylphenolethoxylates (APEO) / Alkylphenols (AP)

APEO are non-ionic surfactants used in the apparel and shoe industry. The most important APEOs for the textile and shoe industry are NPEOs (Nonylphenol ethoxylates) and OPEOs (Octylphenol ethoxylates) due to their excellent surfactants properties. About 90% of the produced APEOs are **NPEOs**. APEOs can degrade into the more toxic Alkylphenoles (APs).

Classification of APEOs

This substance group has been shown to disrupt the hormone system of fish - they are endocrine disruptors, may affect human fertility and cause harm to unborn child. NPs are classified as skin and respiratory irritant.

Hazard classification (GHS)

Danger! According to the classification provided by companies to ECHA in **CLP notifications** this substance is toxic to aquatic life with long lasting effects, causes serious eye damage, is harmful if swallowed, is harmful if inhaled and causes skin irritation.*[1]

- **Persistent, fish toxic, endocrine disruptor**

Regulations APEO

EU practice

- ✓ REACH classification as SVHCs. EU restricted the marketing of NPEOs and NPs in higher concentrations than 0.1 percent in product formulations (Directive 2003/53/EC). The EU is further enforcing the phase out of APEOs and prohibited the placing of textiles on the market with NPEO-levels equal to or exceeding 0.01% (w/w). This Regulation will become effective February 3rd, 2021 *[1]

Sources / Occurrence of APEO

Wet processing, dyeing, printing, washing etc. as:

- Detergents
- Scouring agents e.g. wool and leather
- Wetting agents
- Sizing agents
- Softeners
- Emulsifying/dispersing agents for dyes and prints
- Cleaning agents
- Degreasing agents for leather hides
- Impregnating agents
- De-gumming for silk production
- Dyes and pigment preparations

Components/materials:

- Polyester padding and down/feather fillings
- Plastic or rubber material
- many other types of fabrics and yarns

Secondary auxiliaries:

- Machinery
- Cleaning agents

Safer NPEO Alternatives

The following substances have been identified as examples of **safer alternatives** by the U.S. Environmental Protection Agency "EPA". *[2]

CAS No.	Substance
68439-46-3	C9 -11 alcohols, ethoxylated (6EO)
68131-39-5	C12-15 alcohols, ethoxylated (9EO)
64366-70-7	Oxirane, methyl -, polymer with oxirane, mono(2-ethylhexyl ether); Ecosurf EH-9
68515-73-1	Glucopyranose, oligomeric, decyl octyl glycosides
68411-30-3	Benzenesulfonic acid, C10-13-alkyl derivs., sodium salt
151-21-3	Sodium lauryl sulfate
9004-82-4	Polyoxy(1,2-ethanediyl), alpha -sulfo-omegadodecyloxy-, sodium sal
1338-41-6	Sorbitan monostearate

*[2]

Pay attention on:

- Verify if APEOs are intentionally added.
- Substitute APEOs containing substances.
- Ask chemical suppliers for safer alternatives.
- Work with suppliers who have already phased out the use of APEOs/NPEOs for all clients.
- The machinery can be contaminated and APEOs/NPEOs may be found, if suppliers are using APEOs/NPEOs for other clients.
- Cleaning agents for equipment and maintenance may contain APEOs/NPEOs that can contaminate process materials.

Source: [1] ECHA European Chemicals Agency https://echa.europa.eu/de/substance-information/-/substanceinfo/100.105.533, [2] US Environmental Protection Agency EPA, https://www.epa.gov/saferchoice/partnership-evaluate-alternatives-nonylphenol-ethoxylates