



## Policy on the use of alkylphenols and related derivatives

No Boots brand products or exclusives developed by Boots shall contain alkylphenol ethoxylates or their derivatives, either as a direct ingredient or used as a processing aid. This applies to other alkylphenols, not just nonyl and octyl, and also to materials which could degrade to alkylphenol in the environment, such as nonoxynol-4 sulfate and some nonoxynol-based polymers

If products are found to contain these ingredients then action will be taken to reformulate them out immediately.

November 2008



## Policy support document

### The use of alkylphenols and related derivatives

#### Background

This descriptive term is an oversimplification of a group of chemicals that include octyl and nonylphenols and octyl and nonyl phenol ethoxylates. All are generally surface-active agents used mainly as cleaners, emulsifiers and dispersion agents. They have also been utilised as plasticisers in plastics, and alkylphenol phosphite derivatives have been extensively used as UV stabilisers. Nonoxonol-9 is world-wide-approved spermicide used for condoms.

Typical uses include washing and cleaning products, lubricants, wetting agents and some plastics may contain residues due to use as processing aids in manufacturing.

#### The issue

Alkylphenols and related derivatives have demonstrated hormone-disrupting properties in the environment. The oestrogenic potential of sewage effluents was first discovered after feminised male fish were found in rivers downstream of discharges. Oestrogens cause male fish to produce a female egg protein called vitellogenin and to develop abnormal sex organs containing egg cells. Recent research by the Environment Agency has demonstrated that wild river fish are frequently affected<sup>i</sup>.

Various EU countries have already taken steps to restrict or ban the uses of these chemicals.<sup>ii iii</sup>

In its first advisory notice, the UK Chemical Stakeholder Forum stated that "unacceptable risks" to the environment posed by nonyl phenol and its ethoxylates necessitate phase-outs in seven sectors. These are textiles, leather, metals, pulp and paper, cosmetics, veterinary medicines, and industrial and institutional cleaners. The group recommended a similar phase-out agreement for octyl phenol.<sup>iv</sup> Since then, nonylphenol and its ethoxylates have been restricted by EU and UK legislation, restricting their use in most consumer products with effect from January 2005<sup>v</sup>.

#### Product development team actions

This policy is implemented in GR 001—General Requirements For Boots Brand Products.

No Boots Branded products will be developed using alkylphenols or derivatives. Ensure that Boots brand products and exclusives developed by Boots comply with GR 001.

Implementation date: 1994

Deadline for completion: 2000 Complete

#### Key questions

- **What products are affected?**

As ingredients the most common occurrence would be in detergents and cleaning agents. The difficulty is that they can be used as 'hidden' applications such as processing aids within the plastic industry. Until January 2000 Boots brand condoms were still available containing Nonoxynol-9 that was the only worldwide approved spermicide. As a precautionary approach Boots no longer provide Boots brand condoms that contain nonoxynol-9.



- **What is the legal status?**

Within the UK, and most of Europe, there uses are heavily restricted by legislation. The only exemptions to these are items that are classed as essential use but these are few and far between. The UK chemical stakeholder forum issued a voluntary action notice on these chemicals. (October 2002<sup>vi</sup>). Nonylphenol and its ethoxylates are now restricted in cosmetics, household products and some industrial applications by legislation

- **Are there suitable replacements?**

The benefits of alkylphenols and their derivatives are that they are very useful and flexible in their application that is why industry was opposed to a complete ban. There are now many suitable alternatives available and these should not incur an increased cost.

- **What about products already in development?**

This policy is implemented in GR 001 and was implemented in 1994 so suppliers will be aware that these materials are banned in Boots brand products. Under no circumstances should any Boots brand product be developed using these materials and any infringement will result in withdrawal of product from store.

## Key technical information

### Nonylphenol ethoxylates

Synonyms: Polyethylene mono(nonylphenyl)ether glycols; Polyoxyethylene (9) nonylphenyl ether; Tergitol NP33; Nonylphenyl polyethylene glycol ether, non-ionic; polyethylene glycol 450 nonyl phenol ether, non-ionic surfactant; Tergitol TP9; Ethoxylated nonylphenol; antarox BL-344; macrogol nonylphenyl ether; nonoxinol; nonoxynol; neutronyx 600's; nonipol; renex 600's; solar NP; triton n; T-DET-N; PEG-9 nonyl phenol ether; Protachem 630; POE nonylphenol.

Formula:  $(C_2H_4O)_n \cdot C_{15}H_{24}O$

### Octylphenol Ethoxylates

Synonyms: polyethylene glycol p -1,1,3,3-tetramethylbutylphenyl ether, octyl phenol ethoxylate, 4-octylphenol polyethoxylate, Mono 30

Formula:  $C_{14}H_{22}O(C_2H_4O)_n$

### Octylphenol

Synonym: 4-(1,1,3,3-tetramethylbutyl)phenol, 4-octylphenol

Formula:  $C_{14}H_{22}O$

**CAS:** 1806-26-4

### Nonylphenol

Synonyms: p-Nonylphenol \* p-N-Nonylphenol \* 4-Nonylphenol \* Para-Nonylphenol \* Phenol, 4-Nonyl- (9ci) \*

Formula:  $C_9H_{19}C_6H_4OH$

**CAS:** 104-40-5

Other alkylphenols (and ethoxylates) include Butylphenol (Butoxynol), Dodecylphenol (Dodoxynol) and Pentadecylphenol (Pentadoxynol)



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i ENDS Report 276, p 19

ii Norway prohibits hormone surfactants Environment Daily 1082, 16/10/01

iii Denmark has phased out most uses through voluntary agreements with industry ED 19/10/01

iv Industry urged to act on nonyl phenol Environment Daily 1086, 22/10/01

v Statutory Instrument 2004 No. 1816 The Controls on Nonylphenol and Nonylphenol Ethoxylate Regulations 2004 revoked and replaced in 2006 by The Controls on Dangerous Substances and Preparations Regulations 2006

vi <http://www.defra.gov.uk/news/2002/021018b.htm> Reference Defra News release 422/02