

A Multifunctional Ingredient for Leave on Cosmetics

Author: Dr. Marion Leschke, Schülke & Mayr GmbH, Germany

Keywords: multifunctional ingredient, deodorant, sniff test, ethylhexylglycerin

Abstract

Ethylhexylglycerin is a multifunctional cosmetic ingredient with good deodorising and skin care properties. Several benefits make it very well applicable in different types of cosmetic products. Two main properties of the ethylhexylglycerin – the deodorising efficacy and the efficacy improvement of cosmetic alcohols – will be described. The deodorising efficacy has been proven in sniff tests against triclosan, a widely-used deodorant active. The boosting properties of the antimicrobial activity of several alcohols and glycols will be described exemplarily for phenoxyethanol and pentylene glycol.

Introduction

Ethylhexylglycerin is a glycerol monoalkylether of defined structure and high purity, with a 2-ethylhexyl group bound to the primary hydroxyl function of the glycerol molecule. Due to the fact that it is a crystal-clear, colourless liquid with a slightly characteristic odour it is well suited for the use in cosmetic products. Although it is less soluble in water (< 0.1 % at 25 °C), it is more easily soluble in most common cosmetic alcohols and glycols as well as oils. Ethylhexylglycerin is rather stable, e.g. against hydrolysis and elevated temperatures and compatible with cosmetic ingredients. Ethylhexylglycerin is globally approved and as a new substance accords with the European legislation listed on the ELINCS file (table 1).

Ethylhexylglycerin is a unique, multifunctional additive for cosmetic preparations which adds value to cosmetic formulations in different aspects (1, 2). It is a globally accepted deodorant active, being a very good alternative to triclosan (3, 4). Ethylhexylglycerin acts as an emollient and mild humectant leading to an improved skin feeling (gentle to the skin) with no “stickiness” after application. Furthermore it makes perfume oils or other ingredients soluble and helps them to stay longer on the skin. Ethylhexylglycerin can lower the surface tension in aqueous

systems which may help to improve the antimicrobial efficacy of certain alcohols and glycols.

Deodorant activity

Body odour arises when sweat, odourless in itself, is decomposed by micro-organisms. From the sweat contents, the sebum and skin cell residues, the germs, primarily grampositive bacteria, form substances which have an unpleasant odour.

Antimicrobial deodorants reduce the number of odour-causing bacteria on the skin. They should not affect the normal skin flora and they should be effective for a reasonable time, for example, for about 12 hours. To avoid unpleasant body odour, different active principles are discussed. Sweat secretion is reduced/prevented by astringents, in particular predominantly aluminium salts such as aluminium hydroxychlorides. Astringents denaturise the skin proteins and influence the heat balance of the axilla region.

The microbial flora on the skin are reduced/inhibited by antimicrobial substances. Ideally only those micro-organisms causing the unpleasant odour should be destroyed. Usually the entire microflora of the skin is damaged. Body odour can be concealed by fragrances, although the mixture of body odour and perfume can be unpleasant rather than not.

A well known antimicrobial active ingredient used to reduce the formation of unpleasant body odours is triclosan: 5-chloro-2-(2,4-dichlorophenoxy)phenol. In this investigation we compare the deodorant activity of ethylhexylglycerin with triclosan as a standard substance. To find out the deodorant potential of ethylhexylglycerin sniff tests were performed.

Sniff test

The sniff test is a trial reflecting conditions encountered in practice. The sniff test determines the smell-inhibiting effect of the test products by directly sniffing at the armpits. The test is