A New Generation of Preservatives for Cosmetic Formulations – Nipaguard® PO 5, Nipaguard® POB and Nipaguard® POM

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Abstract

Several currently used preservative classes have been under discussion during recent years because of safety concerns. Therefore a need has arisen for new, highly effective preservative blends which are easily incorporated into cosmetic formulations and which have a good toxicological profile. We have developed three new preservative blends which meet our customer needs concerning safety, efficacy, ease of incorporation, long term stability and antimicrobial activity for personal care products: Nipaguard® PO 5, Nipaguard® POB and Nipaguard® POM.

Introduction

Most cosmetic and personal care products present an ideal environment for microorganisms to grow and multiply quite easily. All the vital components such as temperature, nutrients, pH (slightly acidic to neutral) and water are present in cosmetic products which would make contamination highly likely if preservatives were not used. In most countries around the world, the use of preservatives in cosmetic and personal care formulations is not compulsory. However, the supplier/manufacturer is responsible for ensuring that consumer products such as cosmetics and personal care do not cause harm to the end user if used under normal conditions. Clearly, microbiological contamination would cause harm to the consumer. As several currently used preservative classes have been under discussion, there is a need for new highly effective preservative blends which are easily incorporated into cosmetic formulations and which have a good toxicological profile.

Octopirox®[1] (INCI: Piroctone Olamine) is a highly effective antifungal and antidandruff agent which has been used for over 30 years in the field of personal care formulations. Octopirox® has been reported[2] in the past to be not sufficiently effective as a single preservative for cosmetic formulations. The reason for this may have been inadequate incorporation especially into leave-on personal care products due to its low water solubility. Octopirox® provides its full activity only when completely dissolved and homogeneously distributed in the cosmetic formulation.

Phenoxyethanol is a commonly used solvent for liquid preservative blends but is also a preservative itself with particular efficacy against gram-negative bacteria.

A combination of the antifungal activity of Octopirox® with the antibacterial activity of Phenoyethanol results in a synergistic, broad spectrum activity preservative blend. This blend Nipaguard®[3] PO 5 (INCI: Piroctone Olamine (and) Phenoxyethanol) is a clear liquid. It is easily incorporated into cosmetic formulations and ensures homogeneous distribution of the active Piroctone Olamine, so that both Octopirox® and Phenoxyethanol can instantaneously provide their full activity.

Nipaguard® POB (INCI: Piroctone Olamine (and) Phenoxyethanol (and) Benzoic Acid) and Nipaguard® POM (INCI: Piroctone Olamine (and) Phenoxyethanol (and) Methylparaben) are two further developments with outstanding efficacy. The additional Benzoic Acid and Methylparaben lead to even higher efficacy.

Antimicrobial Activity of Nipaguard® PO 5, Nipaguard® POB and Nipaguard® POM

These blends exhibit micro biostatic activity against a wide range of bacteria, yeasts and molds. This is illustrated by Table 1, which shows the minimum inhibitory concentration (MIC) of Nipaguard® PO 5, Nipaguard® POB and Nipaguard® POM against examples of different groups of microorganisms.