Simulgreen™ 18-2: a New Green Based O/W Emulsifying Structure for Concentrated Performances

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Abstract

Simulgreen™ 18-2 is a new, oil-in-water emulsifying structure able to concentrate performance: with environmentally-friendly structure design, versatile emulsifying power and unprecedented sensory profile, suitable for both women and men.

Manufactured using renewable ingredients of plant origin and according to a process meeting green chemistry principles, Simulgreen™'s original chemical structure is behind its new application properties (INCI name: Hydroxystearyl Alcohol and Hydroxystearyl Glucoside). Usually used at between 1 and 3% Simulgreen™ 18-2 easily emulsifies all types of oil: esters, mineral oils, silicones and vegetable oils over a broad pH range, from 3 to 10. From 3%, it spontaneously produces cream textures without having to add waxy additives, supported by the formation of an elastic network of lamellar phases in the continuous aqueous phase.

Another benefit of Simulgreen™ 18-2 is its improved resistance with respect to electrolyte-rich stress-inducing active ingredients that usually decreases viscosity and strongly affects emulsion stability with natural emulsifiers. Simulgreen™ 18-2 enables the keeping of cream textures where active ingredients are present, without using waxy additives, thus providing an interesting alternative to ethoxylated emulsifying structures (creams are for instance easily obtained with 3% of Simulgreen™ 18-2 and 4% of Magnesium Ascorbyl phosphate at pH=7.2 or 4% of Pyrolidone Carboxylate or 4% of Sodium Glycolate expressed as active substance at pH= 4.5 and 6.5).

The sensory properties of Simulgreen™ 18-2 play hide and seek: light and easy to spread, the cream is rapidly absorbed for an immediate feeling of bare skin, quickly followed by a gradually revealed softness. The lightness and rapidity of absorption in the upper layers of the skin prevents unpleasant soaping phenomena, too often encountered with natural emulsions, especially when vegetable oils are used at a high dose in combination with natural stabilising gums.

Simulgreen™ 18-2 also provides to the end-user significant, continuous moisturisation of the upper layers of the skin, up to 8 hours after application of the emulsion since the lamellar phases structure within the continuous aqueous phase plays the role of water reservoir (demonstrated by *in vivo* corneometric measurement on a panel of 20 volunteers in comparison with an untreated area).

Introduction

Why a New Green Based Emulsifier?

Despite the latest progresses with green based ingredients and all the formulation skills to design efficient and environmental friendly emulsions, there is still a demand for improvement.

A recent worldwide investigation presented in February 2011 by data monitor in a US congress actually showed a contrasting opinion: if more than half of the consumers (52%) think that cosmetic products formulated with natural ingredients are good for their health, only "37% of them feel that health and beauty products formulated with natural ingredients are equally effective as non-natural alternatives" [(1)]. The opinions shared in certain formulator web communities confirmed the need for improvement: for instance, an investigation made in November 2010 on a proprietary specialist website posed the question "what element should be improved in priority looking at natural or organic formulation?" This highlighted that indeed formulators are looking firstly, for better effectiveness (29% of the respondents) and a better texture (23% of the respondents globally but almost 40% in Europe). It can be assumed that there exists a relationship between these two needs because the immediate effectiveness of the formulation is often perceived by the consumer through the texture of the emulsion.

In response to the challenge, Simulgreen™ 18-2 was designed to address key performances and no longer choose between efficiency and aesthetics. A faultless 'green' design, strong and versatile emulsifying properties, an elegant sensory profile and visible benefits for the consumer form the Simulgreen™ 18-2 footprint.