Luviquat Sensation: Conditioning Polymer for Unique Sensory Experience

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Abstract

We have launched a new conditioning polymer "Luviquat® Sensation" PQ-87, which provides a unique sensory experience on hair and skin after shampoo or other rinse-off application. The combination of high cationic charge density at low molecular weight with high anionic surfactant compatibility is a unique characteristic of Luviquat® Sensation. This ensures stable formulations and flexible development whilst offering a new degree of freedom in shampoo and bodywash formulation. Luviquat® Sensation provides a silicone-like, soft feel on hair and skin and excellent wet and dry hair benefits.

Introduction

The basic function of cleansing formulations such as shampoo and bodywash is to clean. Additional benefits such as favorable haptics of hair and skin allow differentiation in a highly competitive market.

Most shampoos and a growing number of bodywashes contain at least one cationic polymer in addition to the surfactant system. The conditioning effect of these polymeric ingredients is seen in better hair combing, reduced frizz, hair volume control, hair shine, resistance to hair damage or colour fade, hair and skin feel, softness, and smoothness.

Cleansing Application

The acknowledged mechanism involves the formation of a cationic polymer surfactant complex, the coacervate, which precipitates and deposits onto the keratin surface. Some conditioning polymers form the coacervate upon dilution during the rinse-off in shampoo or bodywash application. Others build the coacervate instantly when formulated with surfactants.

As the surface charge of hair becomes increasingly negatively charged with increasing degree of damage, the affinity of a cationic polymer to the hair surface increases with increasing charge density of the polymer. Therefore, increasing polymer charge density is favorable for the deposition onto the hair surface.

However, in formulation with anionic surfactants like Lauryl(ether)sulphates, shampoo stability decreases with higher cationic polymer charge density: The polymer charge density can only be increased up to a certain extent until the formulation becomes instable. Nevertheless, the combination of high charge density at low molecular weight with formulation stability is a unique feature of Luviquat® Sensation INCI PQ-87.

The coacervate formation itself and the timing during application process are crucial for depositioning onto hair. This can be observed in dilution experiments with shampoos containing different conditioning polymers whilst monitoring the transmittance of light: When the coacervate is formed, the turbidity of the sample increases. A good conditioning effect and depositioning onto hair can be seen with systems that either enter the two phase region instantly or upon dilution with water at ratios from 1:2 up to 1:5.

Offerings of Luviquat® Sensation

The new high performance conditioning polymer for rinse-off applications provides excellent hair combability, superior hair volume control and a unique sensory experience to hair and skin.

Combing

A widely used approach measures the combing force. In combing force measurements, various interactions are involved: adhesion between comb and hair, friction between hair fibres, and maybe even entanglement of hair fibres.