

Title: **Study and optimization of surfactant mixtures in bath gels.**

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Surfactants have many applications in different fields. One of the industries that use them the most is cosmetics, where they are mainly used because of their cleaning features, but also to modify some properties of emulsions, gels or shampoos like viscosity or foam thickness. Their special structure with a polar and a non-polar part is the responsible of their special aggregation form, the micelles, which give them its high solubilization capacity, and then, their cleaning power.

Inside surfactant world there exist many types of these compounds and cosmetics industry usually uses mixtures of surfactants that improve their individual properties. The objective of this study was to summarize the main surfactants characteristics and to study the behaviour of some surfactant mixtures used in bath gels.

To perform this analysis two properties are considered: the *critical micelle concentration* (CMC) and the foam thickness. After the experimental study of three individual surfactants, the theoretical methods to determine their interactions in a mixture have been analysed. The goal would be to achieve a surfactants mixture with a CMC lower than the individual ones and with an improved foam thickness capacity and that means a synergic interaction between the mixture surfactants.

Key words: surfactant, critical micelle concentration, surfactants mixtures, synergic interaction