

Nanoemulsions and Nanoparticles Employed as Delivery Vehicles for Topical Active Ingredients to Enhance Stability and Efficacy

Strategies to make finished products more stable and efficacious can take advantage of formulation technologies- ingredients and techniques – to improve their delivery into the skin by both enhanced penetration and delayed release.

Nanometer range particles and emulsion droplets can be formed with a selection of either silicone copolyol or conventional organic surfactants and dispersion shear rates sufficient to generate stable submicron droplets. By incorporating these into systems with biomimetic liquid crystalline gel networks in either simple or multiple phase emulsions the skin delivery can be enhanced as shown in tape stripping experiments.

Such systems can stabilize labile actives, such as Vitamin C and retinol, and aid delivery. Laboratories in U.S and Europe investigated actives including green tea polyphenols, salicylic acid and methyl and benzyl nicotinate.