



The Role of Particles in Cosmetics

Particles in cosmetics enhance skin texture and functionality. Spherical particles, in particular, provide a smooth sensation while regulating oil and moisture, such as sebum and sweat, to maintain elastic, pleasant-feeling skin.

The Dominance of Silica in Cosmetic Applications

Precipitated silica and fumed silica, as aggregates of hydrophilic silica nanoparticles, feature porous surfaces and internal voids that contribute to their high absorbency. In particular, spherical fumed silica offers excellent tactile properties, making them widely used compared to alternative particles.

Unique Features of Microplastics in Cosmetics

Microplastics, made from hydrophobic synthetic polymers, possess a poreless and smooth surface. They selectively absorb oily components like sebum, providing a highly pleasant skin feel. Some microplastics also offer elasticity or a rubber-like texture, creating tactile sensations that silica cannot achieve. This makes microplastics indispensable in many formulations, often used alongside silica.

Challenges in Replacing Microplastics

The banning of microplastics, particularly in Europe, has posed significant challenges for cosmetics manufacturers. As microplastics are phased out, there is an urgent demand for alternative materials with similar properties that can seamlessly replace them.

Introduction to QSIL: A Microplastic Alternative

In response to these challenges, N&M Tech developed QSIL, a high-purity silica with a purity exceeding 99%. QSIL features a perfectly smooth, poreless surface with an undetectable amount of SiOH units and a perfectly spherical shape. The low SiOH content on the surface contributes to a more hydrophobic character compared to traditional silica.

Key Advantages of QSIL Over Traditional Silica

Its smooth, poreless surface and perfectly spherical shape provide an exceptional sensory experience on the skin, rivaling or exceeding the performance of microplastics. Additionally, QSIL offers significantly lower liquid absorbency (20–35%) compared to the nearly 100% absorbency of precipitated and fumed silica. This unique combination of properties ensures QSIL achieves an unparalleled balance of smoothness and functionality, making it a superior choice for cosmetic applications.

Innovative Structural Features of QSIL

QSIL's internal structure is partially hollow, offering slight elasticity and compressibility, mimicking the tactile benefits of microplastics. Moreover, QSIL's production process ensures it is nanoparticle-free, eliminating potential safety concerns while maintaining optimal performance in cosmetics.