Another newsletter?

Manufacturers of personal care products have thousands of different raw materials to choose from. New raw materials are constantly being developed that offer new and unique properties for the cosmetics of today and tomorrow.

AEROSIL® fumed and SIPERNAT® precipitated silica have been used in personal care products for many years and therefore might be considered as “traditional” ingredients that, although very useful and of high quality, don’t have much new to offer. But is it really so?

We at Evonik strongly believe that AEROSIL® and SIPERNAT® silica enable new and exciting formulation opportunities. Innovations don’t always have to be the result of new products. This newsletter is to inform personal care formulators and other interested persons of novel concepts and new developments relating to the use of silica in cosmetic formulations.

If you do not focus on new product formulation yourself, please feel free to distribute this newsletter on to your R&D colleagues.

A concept for moisture-rich cosmetics in powder form

Powder-to-Cream

Powder-to-Cream was officially introduced this year to the European and American cosmetic industry at InCosmetics in Milan and at NYSCC in New York. Powder-to-Cream is a concept that allows to formulate almost any moisture-rich personal care product in a powder form. As the concept created a lot of interest amongst show visitors we would like to give those who did not have the chance to visit one of the shows the opportunity to learn more about this concept and how it can be used as a base formulation for an entire series of powder cosmetic products.
Most personal care products have the same type of form. Products may differ by their use, color, skin feel, fragrance and so on but reduced to their delivery form only, a cream is a cream – and this is neither new nor exciting for the consumer.

This is where the Powder-to-Cream concept steps in. The Powder-to-Cream concept makes it possible to formulate almost any moisture-rich formulation in a powder form. The powder obtained using this concept turns into a cream when applied to the skin – a surprising and unexpected effect that will help to attract consumer attention.

Powder-to-Cream formulations consist of two parts: a moisture-rich Powdered Water component and an Actives Absorbate component that carries the lipophilic ingredients. In both components silica plays a key role.

Powdered Water

Powdered Water consists of droplets of an aqueous phase which are stabilized by a shell of hydrophobic AEROSIL® silica particles. The water is suspended within the powder. This is achieved by mixing a water phase and AEROSIL® R 812 S or AEROSIL® R 202 in a high shear mixer. The hydrophobic silica, which first floats on the aqueous phase, enriches at the phase boundary as the aqueous phase is disintegrated into fine droplets, thereby preventing the droplets from coalescing to liquid water. The result is a free flowing powder which can contain up to 95 weight-% of water. To achieve this astonishing effect very hydrophobic silica particles are necessary; both AEROSIL® R 812 S and AEROSIL® R 202 fill the bill. AEROSIL® R 202 is even more hydrophobic than AEROSIL® R 812 S but AEROSIL® R 812 S has a smaller particle size.

When rubbing Powdered Water on the skin, the shell of the AEROSIL® particles is destroyed and the liquid released.

In the Powdered Water component AEROSIL® hydrophobic fumed silica is used to coat and stabilize water droplets, turning a water phase into a free flowing powder. In the Actives Absorbate part hydrophilic precipitated silica functions as a carrier for the active ingredient(s), such as fragrances or other substances that cannot be incorporated in the Powdered Water.
Actives Absorbate

Powdered Water may on its own be used as a way to turn an aqueous formulation into a powder, but there are certain limits to that concept. Additives that decrease the surface tension or wet-out the surface of the AEROSIL® particles will destabilize Powdered Water and a cream—not a powder—results.

So there are limits to the formulation freedom in terms of the choice of ingredients and their concentrations. To overcome these limitations Actives Absorbate was introduced as a second component in the Powder-to-Cream formulation. In the Actives Absorbate component lipophilic additives are absorbed on a porous SIPERNAT® precipitated silica carrier by adding the liquids in small droplets while gently mixing the silica.

Because of the purely physical absorption mechanism of SIPERNAT® carriers there are almost no limits which kind of actives can be added to the Powder-to-Cream formulation using this component. Actives Absorbate therefore is the key to many different creative formulations.

Powder-to-Cream: a formulation platform

Blending the Powdered Water and the Actives Absorbate components leads to the final Powder-to-Cream formulation which can be used as a formulation platform for different types of products. Completely different Powder-to-Cream formulations can be produced by simply mixing a single standard Powdered Water phase with different Active Absorbates.

The silica present in the formulation gives a matte finish, which is useful for color cosmetics. It’s volumizing effect makes the concept interesting for unique hair styling products.

If you would like more information on this innovative concept please download our Technical Information (TI) 1394 “Powder-to-Cream: an innovative concept for cosmetic formulations in powder form” from our website www.aerosil.com.