

Consumer Solutions

Silicone Solutions for Powder Applications



Adding
Value
to Life

Surface Treatment, Dispersant and Carrier Fluid

DOWSIL™ silicone solutions for powder applications enhance performance of sunscreen and color cosmetic products by improving the texture, water repellency and dispersibility of cosmetic powders.

Surface Treatment Agent

- Make inorganic powders hydrophobic
- Water and sebum resistance
- Provide smooth powdery feel
- Improve stability and dispersibility in formulations

Dispersing Agent

- Disperse evenly
- Intensify color
- Improve SPF value
- Reduce white residue

Carrier Fluid

- Improve spreading on the skin
- Reduce tackiness
- Smooth and light sensory performance

Improved Performance to Meet Consumer Demands

Increasing urbanization of the world and almost universal use of social networking have helped trends in color cosmetics move beyond borders. Women are busy in multiple roles, so they are looking to shorten makeup time and demanding all-in-one cosmetics such as BB cream.

DOWSIL™ silicone solutions can help you formulate the high-performance sunscreen and color cosmetic products the market needs. Our silicones for powder applications improve dispersibility, water repellency and texture in cosmetic powders, and contribute to higher performance, particularly in multi-function products such as sunscreens and color cosmetics.



Enhanced Performance

Figure 1: Mechanism of powder surface treatment and dispersing in fluid

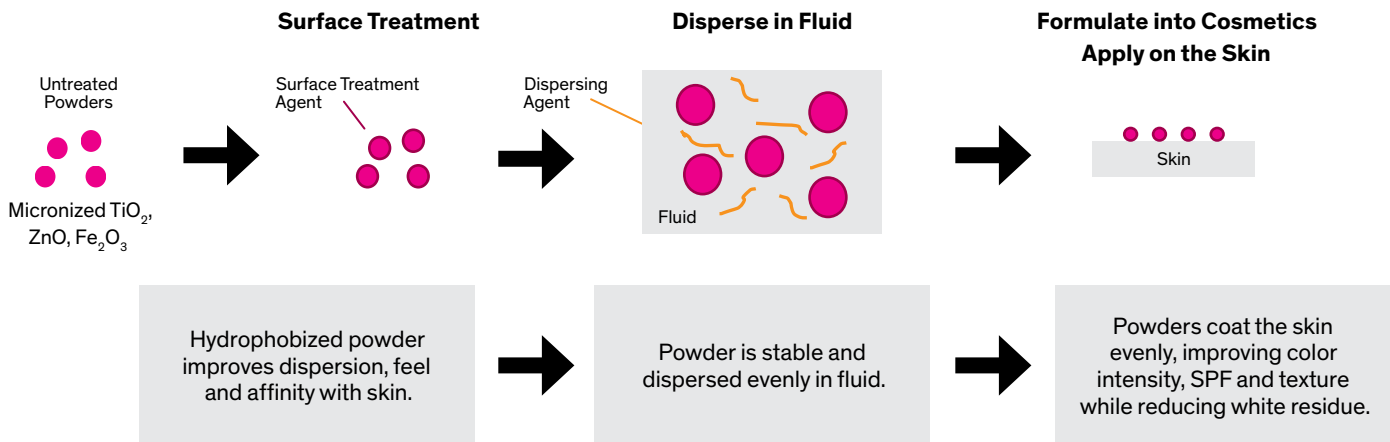
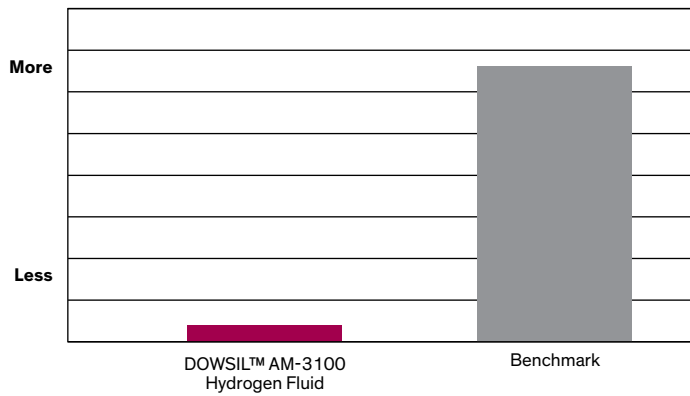


Figure 2: SiH residue (after the primary treatment)



Surface Treatment Agent

Silicone surface treatment makes inorganic powders hydrophobic, improving cosmetics by providing water and sebum resistance. It also improves texture, stability, and ease of dispersion in the formulations, as well as sensory performance.

DOWSIL™ AM-3100 Hydrogen Fluid

INCI name: Hydrogen Dimethicone

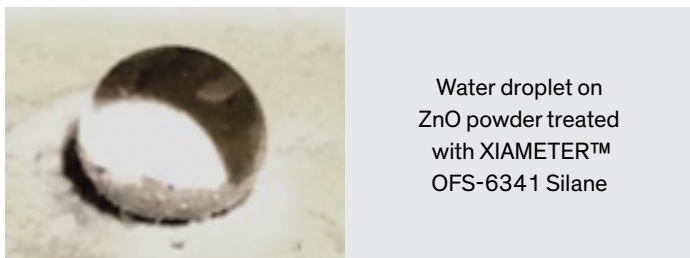
Reduces the hydrogen gas generation during the treatment process (Figure 2). It provides high water repellency and powdery feel, and improves dispersion in fluids.

XIAMETER™ OFS-6341 Silane

INCI name: Triethoxycaprylylsilane

Improves water repellency (Figure 3) and dispersion in fluids, resulting in formulations that provide a creamy texture and uniform coverage on the skin.

Figure 3: Water repellency of treated powder



Dispersing Agent

Silicone products from Dow help disperse pigments and other fine particles evenly without clumping or sedimentation. This helps improve color intensity, vividness and SPF value while reducing white residue on the skin.

DOWSIL™ ES-5612 Formulation Aid

INCI name: PEG-10 Dimethicone

This PEG-modified dimethicone (branched) is able to disperse micronized TiO₂ or ZnO evenly into silicone fluids.

DOWSIL™ ES-5300 Formulation Aid

INCI name: Lauryl PEG-10

Tris(trimethylsiloxy)silylethyl Dimethicone

A PEG-, alkyl- and Si-dendron-modified dimethicone (branched) that helps disperse a variety of powders and pigments into a wide range of fluid – from silicones to hydrocarbons to vegetable oils – stable even with low viscosity.

DOWSIL™ ES-5600 Silicone Glycerol Emulsifier

INCI name: Cetyl Diglyceryl

Tris(trimethylsiloxy)silylethyl Dimethicone

A Di-glycerin-, alkyl- and Si-dendron-modified dimethicone (branched). Its diglycerine OH complex contributes to higher dispersion stability, and is suitable for formulations without PEG functionalities.

DOWSIL™ FZ-2233

INCI name: Bis-Isobutyl PEG/PPG-10/7/Dimethicone Copolymer*

This PEG/PPG-modified dimethicone (ABn Block copolymer) is a dispersing agent with a unique morphology as well as configuration at the surface of the dispersed particle.

*Previous INCI name was Polysilicone-13

Carrier Fluid

Silicone fluids spread easily on the skin and reduce tackiness.

XIAMETER™ PMX-0245 Cyclopentasiloxane

INCI name: Cyclopentasiloxane

XIAMETER™ PMX-0246 Cyclohexasiloxane

INCI name: Cyclohexasiloxane (and) Cyclopentasiloxane

XIAMETER™ PMX-200 Silicone Fluid 2 cSt

INCI name: Dimethicone

These volatile silicone carriers provide a dry and smooth feel while reducing greasiness and tackiness. They can be selected or blended depending on the volatility needed for the application.

DOWSIL™ FZ-3196 Fluid

INCI name: Caprylyl Methicone

Caprylyl(C8)-modified trisiloxane(L3) has low viscosity and moderate volatility, giving it a smooth and dry feel. It has very good spreadability and compatibility with organic oils and makes a good dispersing media for hydrophobic pigment.

DOWSIL™ 5562 Carbinol Fluid

INCI name: Bis(Hydroxyethoxypropyl)Dimethicone

This carbinol-modified dimethicone (ABA Type) offers higher compatibility with more polar organic oils. It is a good dispersing media for powders and pigments.

Figure 4: Viscosity of dispersion in different combinations of fluid and dispersant

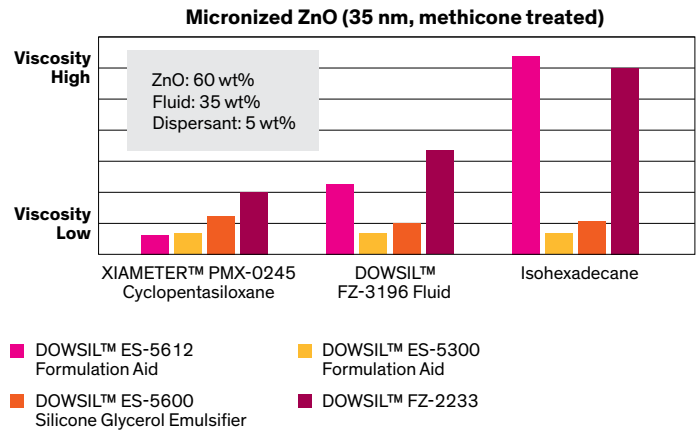


Figure 5: Appearance of micronized TiO₂ dispersion

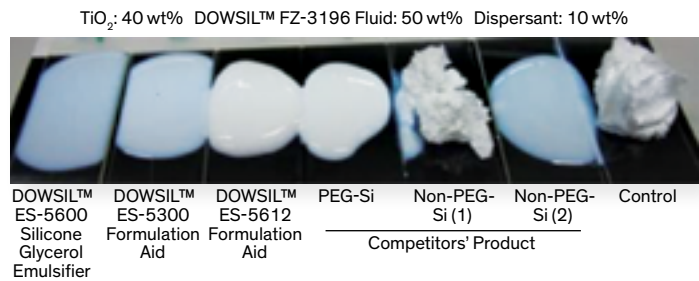
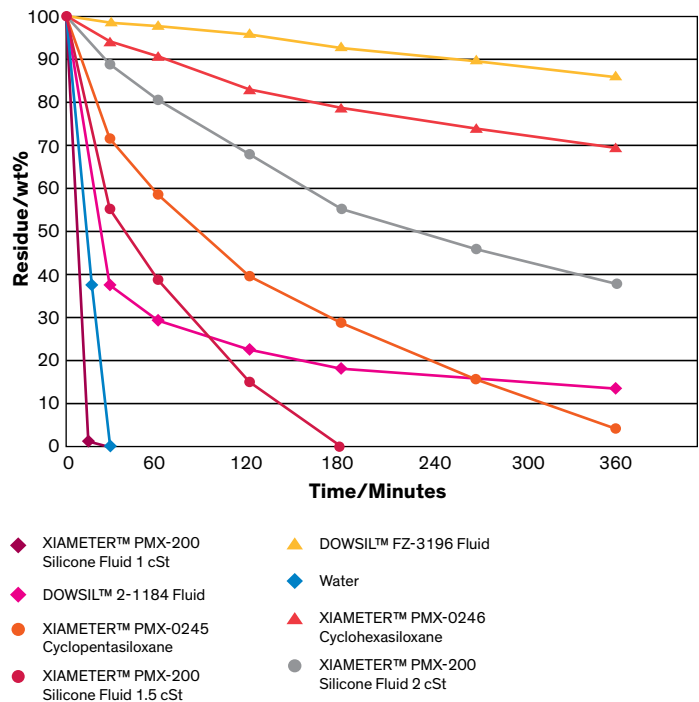


Figure 6: Volatility of silicone fluids (0.1 g in Al cup, 31°C)



Beauty Care That Does More

Dow is creating specialty silicone solutions that help differentiate products and bring beauty to life in a way that has a lasting effect on your business and on the lives of consumers everywhere.

How Can We Help You Today?

Whether you need industry-leading innovation or greater cost efficiency, Dow can help. DOWSIL™ solutions are dedicated to meeting your needs for specialty materials, collaborative problem solving and innovation support.

Learn how we can help you bring beauty with impact to your products, at consumer.dow.com or contact your local Dow sales representative.

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