



DOWSIL™ ES-5300 Formulation Aid

INCI Name: Lauryl PEG-10 Tris(trimethylsiloxy)silylethyl Dimethicone

Features & Benefits

- Silicone W/O and W/Si emulsifier
- Low odor
- Non-diluted emulsifier
- Low viscosity
- Oil-phase flexibility
- Provide stable cream and milky emulsions by low addition level and common mixers
- Light sensory
- Typical applications
 - Pigment and fine particle dispersant
 - Liquid & cream foundation
 - Sun care
 - Skin cream and milky lotion

Composition

- Silicone polyether

Applications

- Silicone emulsifier designed to create low viscosity water-in-oil emulsions.
- Oil phase flexibility for the emulsification of silicone and organic oils and their mixture.
- Can be used in wide range of personal care applications such as:
 - Color cosmetics (example: liquid & cream foundation)
 - Skin care
 - Sun care
 - Hair care
 - Antiperspirants and deodorants

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

| CTM ¹ | Property | Unit | Result |
|------------------|-----------------------------|--------------------|--------------------|
| | Appearance | | Light brown liquid |
| 0004 A | Viscosity | mm ² /s | 1,800 |
| 0002 A | Refractive Index, 25°C | | 1.43 |
| | Calculated HLB ² | | 3 |

1. CTM: Corporate Test Method, copies of CTMs are available on request.
2. Calculated HLB = Polyoxyethylene wt% / 5.

Description

DOWSIL™ ES-5300 Formulation Aid is a non-diluted and low viscosity silicone surfactant.

Designed to produce stable water-in-silicone emulsions and water-in-oil emulsions with light sensory.

DOWSIL™ ES-5300 Formulation Aid improves the dispersibility of pigment and fine particle in silicone fluid and organic oil.

How to Use

The recommended addition level of DOWSIL™ ES-5300 Formulation Aid is 2% for emulsions with a high level of water phase. Decreasing the water phase level will require increasing the emulsifier addition level. Thanks to its broad compatibility with silicone and organic oils and low viscosity, DOWSIL™ ES 5300 Formulation Aid is easily dispersed in the oil phase prior the addition of the water phase.

Water phase should be added slowly into the oil phase containing DOWSIL™ ES-5300 Formulation Aid using a variety of common mixers.

High shear mixing at the end of the emulsification process helps to decrease the particle size.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

When stored at or below 40°C in the unopened original containers, this product has a usable life of 540 days from the date of production.

When stored below 10°C for more than a week, the material might develop a slight haze. If stored for longer (typically more than 4 months) at that temperature, an additional slight separation could also be observed. By heating the material to 40°C and applying a gentle agitation, the material will return to its original transparent appearance.

Packaging Information

- 18 kg pails
- 500 g sample

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

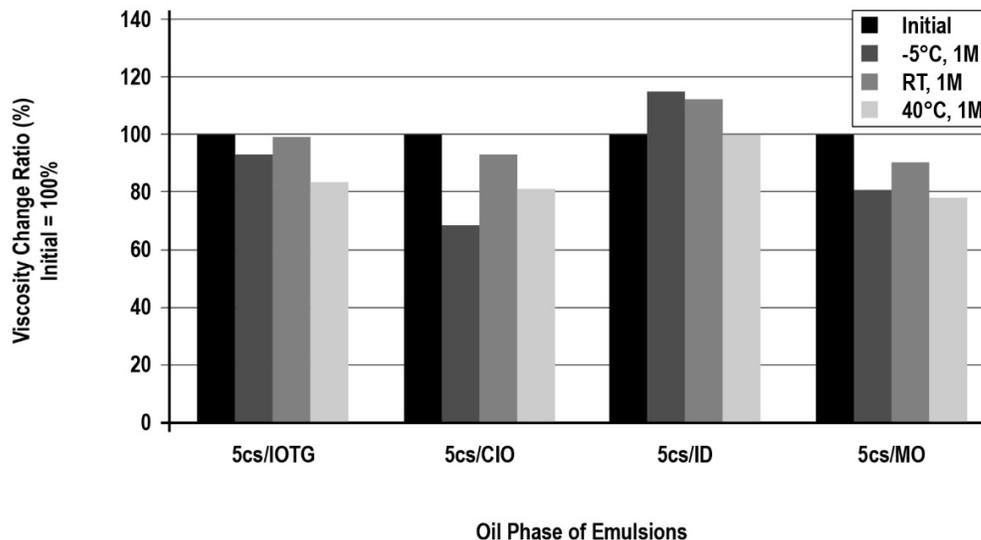
Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Table 1:

Compatibility of DOWSIL™ ES-5300 Formulation Aid with various cosmetic ingredients.

The ratio of DOWSIL™ ES-5300 Formulation Aid:Oil = 1:4

| Ingredient (INCI) | Trade Name of Dow | Compatibility |
|-----------------------------|--|----------------|
| Cyclopentasiloxane | XIAMETER™ PMX-0245 Cyclopentasiloxane | Clear |
| Dimethicone | XIAMETER™ PMX-200 Silicone Fluid 2 cSt | Clear |
| Dimethicone | XIAMETER™ PMX-200 Silicone Fluid 5 cSt | Not compatible |
| CaprylylMethicone | DOWSIL™ FZ-3196 Fluid | Clear |
| PhenylTrimethicone | DOWSIL™ 556 Cosmetic Grade Fluid | Clear |
| Isotridecyl Isononanoate | | Clear |
| Ethylhexyl Palmitate | | Clear |
| Ethylhexyl Methoxycinnamate | | Opaque |
| Isododecane | | Clear |
| Sunflower oil | | Hazy |



Graph 1: Viscosity of W/Si+O emulsions made by DOWSIL™ ES-5300 Formulation Aid.

The viscosity was checked just after emulsification and one month stored at 40°C, room temperature and -5°C.

Ratio of water/dimethicone (5cs)/organic oil / DOWSIL™ ES-5300 Formulation Aid = 80/8/10/2.

Abbreviations: IOTG = Triethylhexanoin; CIO = Cethyl Ethylhexanoate; ID = Isododecane; MO = Mineral oil.

DOWSIL™ ES-5300 Formulation Aid keeps stability of various oil phase emulsions under different storage conditions.

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