



DOWSIL™ 5200 Formulation Aid

Description

INCI: Lauryl PEG/PPG-18/18 Methicone

DOWSIL™ 5200 Formulation Aid is a liquid alkylmethyl silicone polyether copolymer. Its primary function is to produce water-in-oil emulsions with a low to medium polarity oil phase. DOWSIL™ 5200 Formulation Aid is cold processable and exhibits excellent stability at high water concentration and low emulsifier levels. It allows for the incorporation of high levels of humectants such as glycerine and propylene glycol, while maintaining a good sensory profile. DOWSIL™ 5200 Formulation Aid can also be used as an emulsifier for water-in-oil-in-water emulsions and as a co-emulsifier in oil-in-water emulsions.

Uses / Applications

- Bath, shower, and hygiene
- Cleansers
- Hair care
- Skin and body care

Benefits

- Main emulsifier for W/O emulsions
- Co-emulsifier for O/W emulsions
- Can stabilize multiple (W/O/W) emulsions and water-in-wax emulsions
- Cold processable
- Moisturizing and protective
- Non-greasy feel
- Easy to spread
- Wash off resistance
- Light conditioning properties on hair and skin

Physical Properties

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

Property	Unit	Result
Appearance		Clear to translucent, amber/tan/yellow liquid, may contain sediment/particulate
Viscosity range 25°C (77°F)	cSt	1100–2600
Specific gravity		0.896
Actives	%	70–80
HLB (calculated)		2.2
Cyclotetrasiloxane (D4) content	%	< 0.1
Cyclopentasiloxane (D5) content	%	< 0.1

Processing and Application Guidelines

Processing Equipment

a) Stirrer and homogenizer

The water phase is added very slowly into the oil phase with high speed agitation. The final emulsion is then processed through the homogenizer.

b) Turbine type equipment

Turbine set to medium speed during the water addition. Turbine set to maximum speed to build the viscosity at the end. The emulsion viscosity can be increased by the addition of water, within the limits defined above or the viscosity can be decreased by increasing the oil phase volume (up to 35%) but the emulsifier level needs to be increased accordingly.

Formulation Types

a) Water-In-Oil Emulsions

The recommended use level of DOWSIL™ 5200 Formulation Aid is 2% for an oil phase ranging from 18 to 25% for low polarity oil (e.g. mineral oil) and from 25 to 28% for medium polarity oil (e.g. Octyl palmitate). No heating is required to produce these water-in-oil creams unless high melting point ingredients are incorporated. It is important to regulate the speed of addition of the water phase into the oil phase so there is continuous incorporation of the water in oil. Water should not be allowed to build up on the surface during the emulsification process. It is recommended to use sodium chloride at 1% concentration in the water phase for formulation stability.

b) Oil-In-Water Emulsions

DOWSIL™ 5200 Formulation Aid is an efficient co-emulsifier for oil-in-water emulsions at concentrations between 0.5 and 0.9%.

c) Skin and Hair Conditioning Additive

DOWSIL™ 5200 Formulation Aid can be easily incorporated into clear shampoo and shower gels in the presence of fatty acid alkanolamides such as Coconut Diethanolamide or Monoisopropanolamide.

Filtration of Product (Optional)

Occasionally there may be precipitates which form over time in DOWSIL™ 5200 Formulation Aid. The precipitates are the result of residual ingredients that are inherent to the product. Product performance is not expected to be affected by the presence of the precipitates. If desired, the precipitates may be filtered from the product prior to use.

Compatibility Table

Water	I
Cyclomethicone	C
Dimethicone 5 cSt	C
Dimethicone 100 cSt	I
Dimethicone 350 cSt	I
Mineral oil	C
Lanolin	C
Glycerine	I
Propylene Glycol	I

I: Incompatible, C: compatible

Compatibility Table (Cont.)

Isopropyl Myristate	C
Isopropyl Palmitate	C
C12-15 Alkyl Benzoate	C
Capric/Caprylic Triglycerides	C
Sunflower Oil	C
Olive Oil	C
Wheat Germ Oil	C
Castor Oil	I

I: Incompatible, C: compatible

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.

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.

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