



Technical Data Sheet

DOWSIL™ ES-5800 Formulation Aid

INCI NAME: Carboxydecyl Dimethicone

Features & Benefits

- Dispersant for hydrophobized powder in water solution
- Good water repellency, but easy to remove by soap
- Si/W and Oil/W silicone emulsifier
- Non-diluted emulsifier
- Smaller particle emulsions can be achieved
- Surface treatment agent
- Cold or hot processing

Composition

- Carboxy modified polydimethylsiloxane polymer

Applications

- Sun care
- Color cosmetics (foundations, eye shadow, mascara)
- Skin care
- Many other potential formulations (examples: hair care, styling aids, etc.)

Typical Properties

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

Property	Unit	Result
Appearance		Light brown, transparent to translucent liquid
Viscosity (Capillary)	mm ² /s	1500–3000
Acidity	mgKOH/g	150–185
Active Content	%	100
Cyclotetrasiloxane (D4) Level	%	< 0.1
Cyclopentasiloxane (D5) Level	%	< 0.1
China Regulation		Not listed in the catalogue of Cosmetic Ingredients Used in China

Description

DOWSIL™ ES-5800 Formulation Aid is a dispersant for hydrophobized powder (fine particles, pigments and so on) into water phase with carboxy modified functionality. It does not contain ethylene oxide and propylene oxide allows to formulate various PEG-free cosmetic formulations.

Description (Cont.) It is designed to produce stable hydrophobized powder slurry in water with water repellency, but easy to remove by soap.

DOWSIL™ ES-5800 Formulation Aid also allows to make oil-in-water and silicone-in-water emulsion with smaller particle.

DOWSIL™ ES-5800 Formulation Aid also allows to work as surface treatment for pigments and fine particles.

Recommended Use Level 2–10%.

Formulation Tips DOWSIL™ ES-5800 Formulation Aid must be neutralized with alkali ingredients before formulating when it is used as dispersant or emulsifier. When using DOWSIL™ ES-5800 Formulation Aid as detergent improver in W/O formulation, it is recommended to add it after emulsification. See formulation examples.

Formulation Examples

Table 1: O/W Sunscreen, SPF 50+, PA+++ (in Vitro)

Phase	Trade Name/Supplier	INCI Name	Wt%
A	Rheodol TW-0120V / Kao	Polysorbate 80	1
	K-230 / Kaneda	Mineral oil	10
	IOTG / Nihon Fine Chemical	Triethylhexanoin	5
	Uvinul A plus / BASF	Diethylamino Hydroxybenzoyl Hexyl Benzoate	2.5
	Uvinul MC 80 / BASF	Ethylhexyl Methoxycinnamate	7.5
	DOWSIL™ FZ-3196 Fluid / Dow	Caprylyl Methicone	10
	XIAMETER™ PMX-0245 Cyclopentasiloxane / Dow	Cyclopentasiloxane	5
B	Carbopol 980 / Lubrizol	Carbomer 2% aq.	15
		Water	Up to 100
		Sodium Hydroxide	e.q
		Butylene Glycol	1.7
		Glycerin	2
C		Water	5.1
	MTY-02 / TAYCA	Titanium Dioxide	4
		Butylene Glycol	3.3
	DOWSIL™ ES-5800 Formulation Aid / Dow	Carboxydecyl Dimethicone	0.67
		Aminomethyl Propanol	0.19

Formulation Examples (Cont.)

Table 2: O/W Foundation

Phase	Trade Name/Supplier	INCI Name	Wt%
A	DOWSIL™ ES-5800 Formulation Aid / Dow	Carboxydecyl Dimethicone	1.5
		Potassium Hydroxide 50% aq.	0.5
		Glycerin	5
B	CRODAMOL GTCC / CRODA	Caprylic/Capric Triglyceride	4
	XIAMETER™ PMX-0245 Cyclopentasiloxane / Dow	Cyclopentasiloxane	3
	Uvinul MC 80 / BASF	Ethylhexyl Methoxycinnamate	7.5
C	ACULYN™ 33A Polymer / Dow	Acrylates Copolymer	3
		Water	Up to 100
	Triethanolamine / Dow	Triethanolamine	e.q
		Phenoxyethanol	0.9
D		Water	13.9
	SA Titan CR-50 / Miyoshi kasei		8.7
	SA Yellow UXLO / Miyoshi kasei		1.0
	SA Red / Miyoshi kasei		0.2
	SA Black / Miyoshi kasei		0.05
		Butylene Glycol	8.3
	DOWSIL™ ES-5800 Formulation Aid / Dow	Carboxydecyl Dimethicone	0.83
		Aminomethyl Propanol	0.24
E	DOWSIL™ HMW 2220 Non-Ionic Emulsion / Dow	Divinyldimethicone/Dimethicone Copolymer (and) C12-13 Pareth-3 (and) C12-13 Pareth-23	4.2

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 50°C (122°F) in the original unopened containers, this product has a usable life of 18 months from the date of production.

When stored below 5°C for more than a week, the material might become haze paste. By heating the material to 40°C, the material will return to its original transparent appearance. Minimum storage temperature 15°C is recommended.

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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