Technical Data Sheet

DOWSIL™ 3903 Liquid Satin Blend

INCI NAME: Isododecane (and) Dimethicone/Vinyl Dimethicone Crosspolymer

Features & Benefits

- Satin-like feel
- Unique rheology and texture
- Cold processing
- Quick drying carrier fluid
- Ability to create clear systems
- Listed in the *Catalogue of Cosmetic Ingredients Used in China*

Composition

- Mixture of high molecular weight polymer in Isododecane

Applications

- Skin care
- Color cosmetics
- Hair care
- Body care
- Many other potential formulations

Typical Properties

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

Property	Unit	Result
Appearance		Clear to translucent, colorless to slight amber
% Non-Volatile Content	%	7–8
Viscosity	cPs	1500
Cyclotetrasiloxane (D4) content	%	< 0.1
Cyclopentasiloxane(D5) content	%	< 0.1

Description

DOWSIL™ 3903 Liquid Satin Blend is a mixture of a high molecular weight polymer in Isododecane.

Form No. 27-2235-01

How to Use

Disperse DOWSIL™ 3903 Liquid Satin Blend into the oil phase of a formulation using simple mixing to help with emulsification or blending with other polar or non-polar oils. There is no need for post-shearing. Formulations can be achieved with cold processing.

Formulation Tips

DOWSIL™ 3903 Liquid Satin Blend may be formulated into oil-in-water emulsions, water-in-silicone emulsions, water-in-oil emulsions, and anhydrous products.

- It may be added to the oil or silicone phase.
- It may be post-added to emulsions provided the emulsion in viscous enough for the product to be dispersed.
- For ease of use, its viscosity may be reduced by blending with further Isododecane or similar non-polar oils.
- It may be necessary to use a syringe or similar device to help weigh out material.
- It is dispersible in a variety of liquid oils.
- Because the polymer is stable, DOWSIL™ 3903 Liquid Satin Blend may be subjected to heat for a short duration. When heat is used, material should be processed in an enclosed vessel to prevent the Isododecane from volatilizing; the vessel should be inerted at temperatures over 40°C (104°F).

Processing

The following may be useful when processing DOWSIL™ 3903 Liquid Satin Blend.

Shear Degradation

The properties of the polymer contained within DOWSIL™ 3903 Liquid Satin Blend can be degraded when exposed to excessive shear. Table 3 demonstrates the ability to lower the viscosity of the material under various shear for different time periods. The results are shown as % retention of the original material's viscosity. As can be noted, under low shear conditions (mixing such as stirring or agitated vessels) the material is stable. However, as you increase the applied shear to a medium rate (low or medium speed dispersers as one example) the material is stable under lower time exposure but can degrade with longer exposure. Under high shear conditions (rotor stators of high speed dispersers) the material can degrade with short exposure. Each situation is different and needs to be assessed as such, so please be aware of this processing limitation when evaluating this material in formulation and when designing processes.

Dilution

DOWSIL™ 3903 Liquid Satin Blend can retain its properties upon dilution. As expected, upon further addition of Isododecane products viscosity will drop; however, the stringing nature of the material actually increases due to polymer entanglements.

Clean-up

A non-polar solvent, which dilutes DOWSIL™ 3903 Liquid Satin Blend, is recommended for soaking or cleaning equipment.

Table 1: Compatibility Table

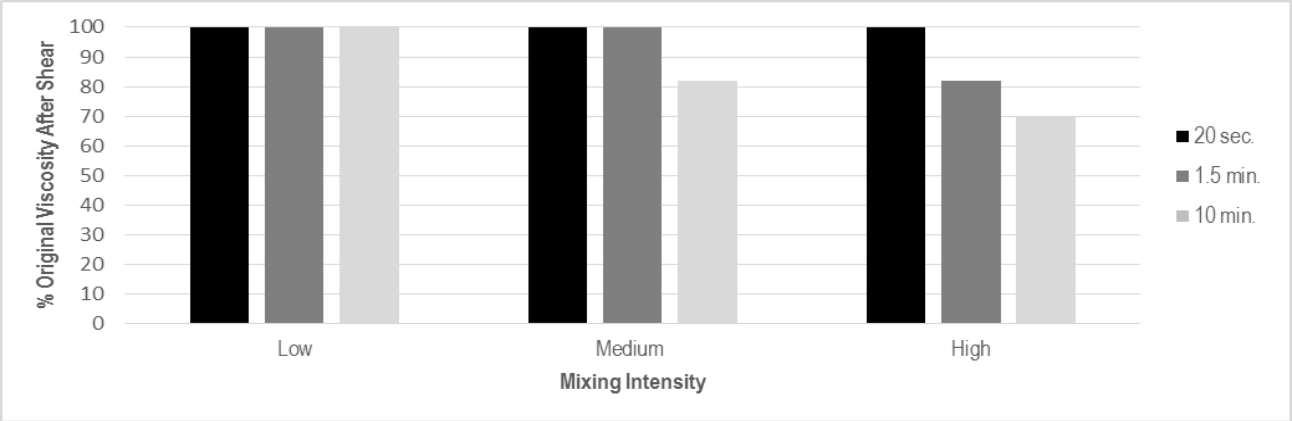
	DOWSIL™ 3903 Liquid Satin Blend: Cosmetic Ingredient		
	10:90	50:50	90:10
Hydrophilics			
Water	NC	NC	NC
Ethanol	NC	NC	NC
Esters			
Isononyl Isononanoate	C	C	C
Dicapryl Carbonate	C	C	C
PPG-3 Myristyl Ether	NC	NC	C
C12-15 Alkyl Benzoate	NC	NC	C
Caprylic/Capric Triglyceride	NC	NC	C
Vegetable Oil			
Sunflower Oil	NC	NC	H
Castor Oil	H	H	H
Sunscreens			
Ethylhexyl Methoxycinnamate	NC	NC	H
Etheylhexyl Salicylate	NC	H	C
Octocrylene	NC	H	H
Silicones			
Cylcopentasiloxane	C	C	C
PDMS 2 CST	C	C	C
PDMS 5 CST	C	C	C
PDMS 100 CST	C	C	C
PDMS 350 CST	C	C	C
Phenyl Trimethicone	C	C	C
Caprylyl Methicone	C	C	C
Hydrocarbons			
Isododecane	C	C	C
Isohexadecane	C	C	C
Mineral Oil	NC	NC	C

NC: Not compatible
H: Hazy
C: Clear

Table 2: Dissolution Times

Solvent	Time needed
Isododecane, Isononyl Isononanoate, Dicapryl Carbonate	< 5 minutes
Cyclopentasiloxane, Phenyl Trimethicone, Caprylyl Methicone	< 5 minutes
XIAMETER™ PMX-200 Silicone Fluid 2 cst, 5 cst, 10 cst, 50 cst	< 3–7 minutes
XIAMETER™ PMX-200 Silicone Fluid 100 cst	30–35 minutes
XIAMETER™ PMX-200 Silicone Fluid 350 cst	90–120 minutes
Ethanol, Caprylic/Capric Triglyceride, C12-15 Alkyl Benzoate	Not Compatible
Procedure: Mixed 50:50 using a marine propeller at 300 rpm at room temperature.	

Table 3: Shear Degradation



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 CONSUMER.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 (104°F) in the original, unopened containers, this product has a usable life of 24 months from date of production.

Packaging Information

This product is available in 150 kg drums and 16 kg pails. Samples are available in 400 mL bottles.

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, consumer.dow.com or consult your local Dow representative.

consumer.dow.com

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DOW SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.