Technical Data Sheet

DOWSIL™ SH 200 Fluid

Polydimethylsiloxane base fluid

Features & Benefits

- Good dielectric properties
- High water repellency
- High shearability without breakdown
- High compressibility
- High spreadability
- Low surface tension
- Low reactivity
- Low vapor pressure
- Good heat stability
- Good leveling and easy rubout
- Essentially odorless
- Soluble in a wide range of solvents
- Volatile carrier
- Compatible with a wide range of cosmetic ingredients

For personal care:

- Soft feel and subtle skin lubricity
- Excellent spreading
- Leaves no residue or buildup
- Transient effect
- Nongreasy feel

For industrial applications:

- Little change in physical properties over a wide temperature span – a relatively flat viscosity-temperature slope, and serviceability from -40°C up to 200°C
- Low surface tension – readily wets clean surfaces to impart water repellency and release characteristics

Composition

- Polydimethylsiloxane fluid
- Chemical composition $(CH_3)_3SiO[SiO(CH_3)_2]nSi(CH_3)_3$

Applications

- Personal care products such as hair sprays, cleansing creams, skin creams, lotions, bath oils, suntan products, and nail polishes
- Personal care products such as antiperspirants and deodorants (1 cSt, 1.5 cSt, 2 cSt)

Applications (Cont.)

- Industrial applications such as glass vial and lens coatings, household product ingredients, mechanical fluids, penetrating oil ingredients, surface active agents, coatings, electrical insulating fluids and polish ingredients

Typical Properties

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

Property	Unit	Result			
		DOWSIL™ SH 200 Fluid			
		0.65 cSt	1.0 cSt	1.5 cSt	2.0 cSt
Appearance		Crystal clear	Crystal clear	Crystal clear	Crystal clear
INCI Name		Disiloxane	Trisiloxane	Dimethicone	Dimethicone
Specific Gravity at 25°C (77°F)		0.760	0.816	0.851	0.872
Refractive Index at 25°C (77°F)		1.3745	1.3826	1.3874	1.3904
Color, APHA		5	5	5	5
Flash Point, Closed Cup	°C	-1	30	57	87
Acid Number, BCP		Trace	Trace	Nil	Nil
Melt Point	°C[1,2]	-68	-86	-76	-84
Pour Point	°C	-68	-100	-100	-100
Surface Tension at 25°C (77°F)	dynes/cm	15.9	17.4	18.0	18.7
Viscosity Temperature Coefficient		0.31	0.41	0.46	0.48
Coefficient of Expansion	cc/cc/°C	0.00134	0.00134	0.00134	0.00117
Thermal Conductivity at 50°C (122°F)	g cal cm•sec °C	0.00024			0.00026
Solubility Parameter[3]		6.8	7.0	7.0	7.1
Solubility in Typical Solvents					
Chlorinated Solvents		High	High	High	High
Aromatic Solvents		High	High	High	High
Aliphatic Solvents		High	High	High	High
Dry Alcohols		Good	Good	Good	Good
Water		Poor	Poor	Poor	Poor
Fluorinated Propellants		High	High	High	High
Dielectric Strength at 25°C (77°F)	volts/mil	300	350	350	350
Volume Resistivity at 25°C (77°F)	ohm-cm	1.0×10^{14}	1.0×10^{14}	5.0×10^{14}	5.0×10^{14}

1. The melt point temperature is a typical value and may vary somewhat due to molecular distribution. If the melting point is critical to your application, then several lots should be thoroughly evaluated.
2. Due to different rates of cooling, this test method may yield pour points lower than the temperature at which these fluids would melt.
3. Fedors Method: R.F. Fedors, *Polymer Engineering and Science*, Feb. 1974.

Description

DOWSIL™ SH 200 Fluid is a polydimethylsiloxane fluid commonly used as a base fluid in personal care products due to its excellent spreading and unique volatility characteristics. It is clear, tasteless, essentially odorless and non-greasy. Unlike other volatile carriers used in the personal care industry, this volatile silicone fluid does not cool the skin when it evaporates, a consequence of its unusually low heat of vaporization.

DOWSIL™ SH 200 Fluid, 0.65 cSt, is a volatile fluid with an appreciable vapor pressure at ambient temperature.

Commercial bulk-polymerized dimethyl silicone fluids, such as DOWSIL™ SH 200 Fluid, typically contain trace amounts of impurities.

How to Use

DOWSIL™ SH 200 Fluid may be used alone or blended with other cosmetic fluids to provide a fluid base for a variety of cosmetic ingredients. It features good solubility in most anhydrous alcohols and in many solvents used in cosmetics.

Handling Precautions

DOWSIL™ SH 200 Fluid may cause temporary eye discomfort.

Use caution when handling volatile fluids at temperatures within 10°C of the quoted flash point.

DOWSIL™ SH 200 Fluid with viscosities below 5 cSt are flammable. Keep away from heat, sparks, open flames and other sources of ignition. Keep container tightly closed.

At elevated temperatures, DOWSIL™ SH 200 Fluids are sensitive to contamination by strong acids, bases, some metallic compounds and oxidizing agents. These contaminants may cause an accelerated rate of volatile byproduct formation. Oxidizing agents can also cause an increase in fluid viscosity. When these conditions may exist, it is recommended that the flash point of the fluids be checked periodically to monitor operational safety. Also, ignitable conditions may exist if the fluid is giving off smoke.

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

Product should be stored at or below 25°C (77°F) in original, unopened containers.

Limitations

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

Not intended for human injection. Not intended for food use.

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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