



Technical Data Sheet

DOWSIL™ SH 245 Fluid

INCI NAME: Cyclopentasiloxane

Features & Benefits

- Volatile carrier
- Compatible with a wide range of cosmetic ingredients
- Low surface tension
- Imparts soft silky feel to the skin
- Excellent spreading
- Leaves no oily residue or build up
- Detackification
- Non-greasy

Applications

- A base fluid in a number of personal care products, with excellent spreading, easy rub-out and lubrication properties together with unique volatility characteristics.
- Antiperspirants, deodorants, hair sprays, cleansing creams, skin creams, lotions and stick products, bath oils, suntan and shaving products, make-up, nail polishes.
- In sticks, it has the right balance between volatility and spreading.

Typical Properties

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

Property	Unit	Result
Appearance		Colorless liquid
Specific gravity at 25°C (77°F)		0.95
Viscosity at 25°C (77°F)	mm ² ·s ⁻¹	4.0
Refractive index at 25°C (77°F)		1.397
Surface tension at 25°C (77°F)	mN/m	18.0
Flash point – closed cup	°C (°F)	77 (171)
Freeze point	°C (°F)	< -50 (< -58)
Boiling point at 760 mm Hg		205 (401)
Water content	ppm	250
Cyclotetrasiloxane (D4) content	%	< 0.1

Description

DOWSIL™ SH 245 Fluid is a volatile polydimethylcyclorosiloxane composed mainly of cyclopentasiloxane.

The product is clear, tasteless, essentially odorless, non-greasy and non-stinging.

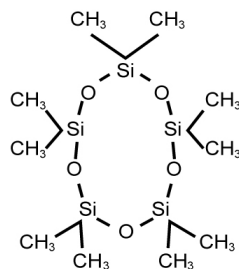


Figure 1: Cyclopentasiloxane (D5)

How to Use

DOWSIL™ SH 245 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 cosmetic solvents.

DOWSIL™ SH 245 Fluid is a volatile fluid with appreciable vapor pressure at ambient temperature.

Figure 2 gives typical vapor pressure vs temperature data for the fluids along with those for water and ethanol. The data given should be helpful in determining volatility range and in calculating the partial pressure of the silicone in a formulated system. By using blends of cyclomethicones this difference in volatility can be used to vary the residence time of the silicone on the skin.

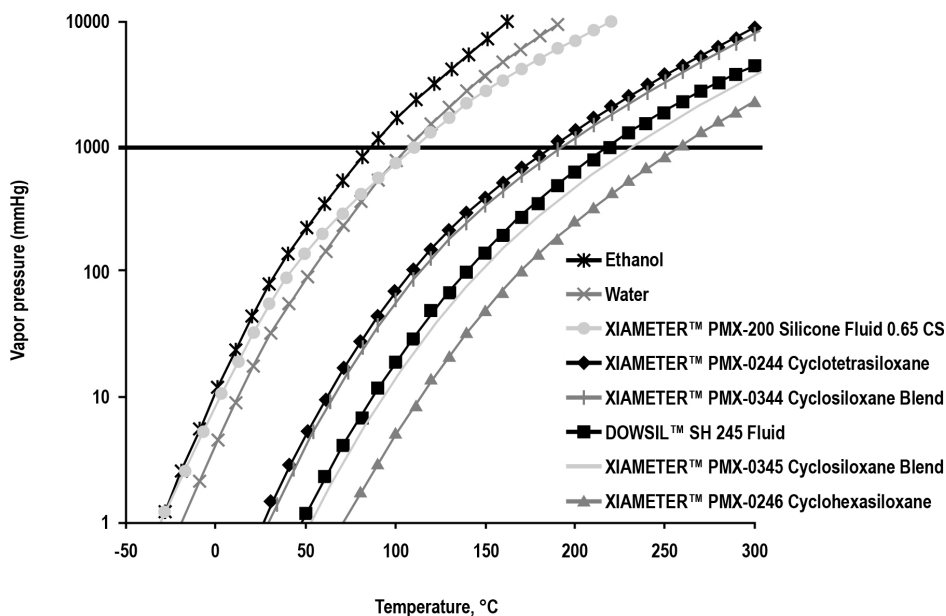


Figure 2: Vapor pressure vs temperature of volatile silicone fluids (and several common fluids).

How to Use (Cont.)

Unlike other volatile carriers used in the personal care industry, volatile silicone fluids do not cool the skin when they evaporate. This is a consequence of their unusually low heat of vaporization.

Table 1 gives the heat required to vaporize one gram of each of the indicated materials.

Table 1: Heat of Vaporization

Fluid	Unit	Heat of Vaporization (25°C / 77°F)
XIAMETER™ PMX-0244 Cyclotetrasiloxane	kJ/kg	172
DOWSIL™ SH 245 Fluid	kJ/kg	157
XIAMETER™ PMX-0246 Cyclohexasiloxane	kJ/kg	147
XIAMETER™ PMX-0344 Cyclosiloxane Blend	kJ/kg	168
XIAMETER™ PMX-0345 Cyclosiloxane Blend	kJ/kg	155
Water	kJ/kg	2257
Ethanol	kJ/kg	840
XIAMETER™ PMX-200 Silicone fluid 0.65 cSt	kJ/kg	192

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

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

Care should be taken when handling volatile fluids at temperatures 10°C below the quoted flash point.

As with any flammable material, containers should be kept tightly closed and away from heat, sparks, open flames, and other sources of ignition.

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.

Table 2: Compatibility

Type of material	
Water	I ¹
Ethanol (200 proof)	C
Glycerine	I
Octyl methoxy cinnamate	C
Waxes	
Stearyl alcohol	C
Beeswax	C
Paraffin wax	C
Myristyl myristate	C
Stearic acid	C

¹C: compatible all ratios; I: Incompatible all ratios.

Results from heating the ingredients to approximately 80°C (176°F) (care has to be taken as silicone fluid is above its flash point).

All other results obtained at 25°C (77°F).

Table 2: Compatibility (Cont.)

Type of material	
Hydrocarbons	
Mineral oil	C
Petrolatum	C
Isododecane	C
Isopar H	C
Polydecene	C
Oils	
Almond oil	C
Castor oil	I
Jobba oil	C
Soybean oil	C
Sunflower oil	C
Esters	
Isopropyl myristate	C
Isopropyl palmitate	C
Octyl palmitate	C
C12-C15 alcohol benzoate	C
Capric/caprylic triglycerides	C
Octyldodecanol	C
Oleyl alcohol	C
Silicones	
Dimethicone, 350 mm ² s ¹ C	C
Phenyl trimethicone C	C
Stearyl dimethicone C	C
Cetyl dimethicone C	C

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