XIAMETER® PMX-0245 Cyclopentasiloxane

INCI NAME: Cyclopentasiloxane

FEATURES

- Volatile carrier
- Compatible with a wide range of cosmetic ingredients
- Low surface tension

BENEFITS

- 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. Please contact your local XIAMETER® sales representative prior to writing specifications on this product.

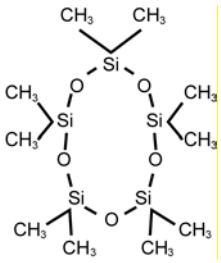
Test	Unit	Value
Appearance		Colorless liquid
Specific gravity at 25°C (77°F)		0.95
Viscosity at 25°C (77°F)	$mm^2.s^{-1}$	4.0
Refractive index at 25°C (77°F)		1.397
Surface tension at 25°C (77°F)	mN/m	18.0
Flash point – closed cup	°C (°F)	77 (171)
Freeze point °C (°F)	°C (°F)	<-50 (<-58)
Boiling point at 760mm Hg		205 (401)
Water content	ppm	250
Cyclotetrasiloxane (D4) content	%	<1.0

DESCRIPTION

XIAMETER® PMX-0245 Cyclopentasiloxane is a volatile polydimethylcyclosiloxane composed mainly of cyclopentasiloxane.

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

Figure 1:
Cyclopentasiloxane (D5)



HOW TO USE

XIAMETER PMX-0245 Cyclopentasiloxane 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.

XIAMETER PMX-0245 Cyclopentasiloxane 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.

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.

PRODUCT SAFETY INFORMATION

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL, ENVIRONMENTAL, AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE XIAMETER® WEB SITE AT WWW.XIAMETER.COM.

STORAGE

Product should be stored at or below 25°C (77°F) in the original unopened containers. The most up-to-date shelf life information can be found on the XIAMETER Web site in the Product Detail page under Sales Specification.

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.

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 Corning'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.

DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Table 1: Heat of vaporization

Fluid	Heat of vaporization (25°C/77°F)
	(kJ/kg)
XIAMETER® PMX-0244 Cyclotetrasiloxane	172
XIAMETER PMX-0245 Cyclopentasiloxane	157
XIAMETER® PMX-0246 Cyclohexasiloxane	147
XIAMETER® PMX-0344 Cyclosiloxane blend	168
XIAMETER® PMX-0345 Cyclosiloxane blend	155
Water	2257
Ethanol	840
XIAMETER® PMX-200 Silicone fluid 0.65CS	192

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
Hydrocarbons	
Mineral oil	C
Petrolatum	C
Isododecane	C
Isopar H	C
Polydecene	C
Oils	
Almond oil	C
Castor oil	I
Jojoba 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, 350mm^{2}s^{-1} C	C
Pheyl trimethicone C	C
Stearyl dimethicone C	C
Cetyl dimethicone C	C

[1]C: 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).

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