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Technical Data Sheet

XIAMETER™ PMX-200 Silicone Fluid, 50–1,000 cSt

INCI Name: Dimethicone
Colorless, clear polydimethylsiloxane fluid

Features & Benefits

- Ease of application and rubout
- Ease of buffing
- Enhances color
- High water repellency
- High compressibility
- High shearability without breakdown
- High spreadability and compatibility
- Low environmental hazard
- Low fire hazard
- Low reactivity and vapor pressure
- Low surface energy
- Good heat stability
- Essentially odorless, tasteless and nontoxic
- Soluble in a wide range of solvents

For personal care applications

- Imparts soft, velvety skin feel
- Spreads easily on both skin and hair
- De-soaping (prevents foaming during rubout)

For industrial applications

- High dielectric strength
- High damping action
- Oxidation-, chemical- and weather-resistant

Composition

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

Applications

- Active ingredient in a variety of automotive, furniture, metal and specialty polishes in paste, emulsion and solvent-based polishes and aerosols
- Various applications including cosmetic ingredient, elastomer and plastics lubricant, electrical insulating fluid, foam preventive or breaker, mechanical fluid, mold release agent, surface active agent, and solvent-based finishing and fat liquoring of leather

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Typical Properties

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

Property	Unit	Result		
		50 cSt	100 cSt	200 cSt
Appearance		Crystal clear	Crystal clear	Crystal clear
Specific Gravity at 25°C (77°F)		0.960	0.964	0.967
Refractive Index at 25°C (77°F)		1.4022	1.4030	1.4032
Color, APHA		5	5	5
Flash Point, Open Cup	°C (°F)	318 (605)	> 326 (> 620)	> 326 (> 620)
Acid Number, BCP		trace	trace	trace
Melt Point	°C (°F)[1,2]	-41 (-42)	-28 (-18)	-27 (-17)
Pour Point	°C (°F)	-70 (-94)	-65 (-85)	-65 (-85)
Surface Tension at 25°C (77°F)	dynes/cm	20.8	20.9	21.0
Volatile Content, at 150°C (302°F)	percent	0.3	0.02	0.07
Viscosity Temperature Coefficient		0.59	0.60	0.60
Coefficient of Expansion	cc/cc/°C	0.00104	0.00096	0.00096
Thermal Conductivity at 50°C (122°F)	g cal/cm·sec·°C		0.00037	
Solubility Parameter[3]		7.3	7.4	7.4
Solubility in Typical Solvents				
Chlorinated Solvents		High	High	High
Aromatic Solvents		High	High	High
Aliphatic Solvents		High	High	High
Dry Alcohols		Poor	Poor	Poor
Water		Poor	Poor	Poor
Fluorinated Propellants		High	High	High
Dielectric Strength at 25°C (77°F)	volts/mil	400	400	400
Volume Resistivity at 25°C (77°F)	ohm-cm	$1.0x10^{15}$	$1.0x10^{15}$	$1.0x10^{15}$
		350 cSt	500 cSt	1,000 cSt
Appearance		Crystal clear	Crystal clear	Crystal clear
Specific Gravity at 25°C (77°F)		0.969	0.970	0.970
Refractive Index at 25°C (77°F)		1.4034	1.4035	1.4035
Color, APHA		5	5	5
Flash Point, Open Cup	°C (°F)	> 326 (> 620)	> 326 (> 620)	> 326 (> 620)
Acid Number, BCP		trace	trace	trace
Melt Point	°C (°F)	-26 (-15)	-25 (-13)	-25 (-13)

1. The melt point temperature is a typical value and may vary somewhat due to molecular distribution (especially 50 cSt). 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.

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Typical Properties (Cont.)

Property	Unit	Result		
		350 cSt	500 cSt	1,000 cSt
Pour Point	°C (°F)	-50 (-58)	-50 (-58)	-50 (-58)
Surface Tension at 25°C (77°F)	dynes/cm	21.1	21.2	21.2
Volatile Content, at 150°C (302°F)	percent	0.15	0.11	0.11
Viscosity Temperature Coefficient		0.60	0.61	0.61
Coefficient of Expansion	cc/cc/°C	0.00096	0.00096	0.00096
Thermal Conductivity at 50°C (122°F)	g cal/cm·sec·°C		0.00038	0.00038
Solubility Parameter		7.4	7.4	7.4
Solubility in Typical Solvents				
Chlorinated Solvents		High	High	High
Aromatic Solvents		High	High	High
Aliphatic Solvents		High	High	High
Dry Alcohols		Poor	Poor	Poor
Water		Poor	Poor	Poor
Fluorinated Propellants		High	High	High
Dielectric Strength at 25°C (77°F)	volts/mil	400	400	400
Volume Resistivity at 25°C (77°F)	ohm-cm	$1.0x10^{15}$	$1.0x10^{15}$	$1.0x10^{15}$

Description

XIAMETER™ PMX-200 Silicone Fluid, 50–1,000 cSt is a polydimethylsiloxane polymer manufactured to yield essentially linear polymers in a wide range of average kinematic viscosities.

The viscosities generally used in formulating polishes are between 100 and 30,000 cSt. To obtain optimum results, in terms of ease of application and depth of gloss, it is preferable to use a blend of a low-viscosity fluid and a high-viscosity fluid (e.g. 3 parts XIAMETER™ PMX-200 Silicone Fluid 100 cSt and 1 part XIAMETER™ PMX-200 Silicone Fluid 12,500 cSt). The low-viscosity silicone fluid acts as a lubricant to make polish application and rubout easier, whereas the high-viscosity silicone fluid produces a greater depth of gloss. Since these polymers are inherently water-repellent, they will cause water to bead up on a treated surface rather than penetrate the polish film.

How To Use

XIAMETER PMX-200 Silicone Fluid, 50–1,000 cSt is highly soluble in organic solvents such as aliphatic and aromatic hydrocarbons, and the halocarbon propellants used in aerosols. The fluid is easily emulsified in water with standard emulsifiers and normal emulsification techniques. XIAMETER PMX-200 Silicone Fluid, 50–1,000 cSt is insoluble in water and many organic products. Additive quantities as small as 0.1% may suffice where XIAMETER PMX-200 Silicone Fluid, 50–1,000 cSt is to be used as a surface agent or for de-soaping creams and lotions. However, 1–10% is needed for applications such as hand creams and lotions to form a more uniform film and effective barrier.

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Handling Precautions

XIAMETER PMX-200 Silicone Fluid, 50–1,000 cSt may cause temporary eye discomfort.

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 WWW.CONSUMER.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 60°C (140°F) in the 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, www.consumer.dow.com or consult your local Dow representative.

http://www.xiameter.com

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