Technical Data Sheet

XIAMETER™ PMX-200 Silicone Fluid, 5,000–60,000 cSt

INCI Name: Dimethicone
Silicone fluid for foam control and additive applications

Features & Benefits

- Ease of application, rubout and buffing
- Enhances color
- Reduced surface tension
- Fungi- and bacteria-resistant
- Thermally stable
- Essentially inert
- Soluble in a wide range of solvents
- High compressibility
- High shearability without breakdown
- High gloss intensity
- High damping action
- Low environmental hazard and fire hazard
- Low reactivity
- Low surface energy
- Low vapor pressure
- Low pour point
- Allows skin transpiration
- Essentially colorless, tasteless and nontoxic
- Characteristic odor
- Good abrasion resistance
- Water repellent

For personal care applications:

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

For industrial applications:

- Oxidation-, chemical- and weather-resistant
- Excellent release, dielectric and antifoam properties

Composition

- Linear polydimethylsiloxane polymers
- $(CH_3)_3SiO[SiO(CH_3)_2]_nSi(CH_3)_3$

Applications

- Active ingredient in a variety of automotive, furniture, metal, and specialty polishes
- Ingredient in protective creams, aerosol shave lathers, antiperspirants, and other personal care products
- Foam control for petroleum production and refinery operations
- Other applications including coatings additive, damping fluid, elastomer and plastics lubricant, electrical insulating fluid, mechanical fluid, mold release agent, plastics additive, specialty chemical products ingredient, leather finishing, surface active agent

Typical Properties

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

Property	Unit	Result				
As Supplied		5000 cSt	10,000 cSt	12,500 cSt	30,000 cSt	60,000 cSt
Appearance		Crystal clear	Crystal clear	Crystal clear	Crystal clear	Crystal clear
Specific Gravity at 25°C (77°F)		0.972	0.974	0.974	0.976	0.977
Refractive Index at 25°C (77°F)		1.403	1.4036	1.4036	1.4037	1.4036
Color, APHA			5	5	5	5
Flash Point, Open Cup	°C (°F)	> 321 (> 610)	> 326 (> 620)	> 326 (> 620)	> 326 (> 620)	> 326 (> 620)
Acid Number, BCP			trace	trace	trace	trace
Melt Point	°C (°F)[1,2]		-24 (-11)	-24 (-11)	-23 (-9)	-23 (-9)
Pour Point	°C (°F)	-50 (-58)		-46 (-51)	-43 (-45)	-41 (-42)
Surface Tension at 25°C (77°F)	dynes/cm	21.4	21.5	21.5	21.5	21.5
Volatile Content at 150°C (302°F)	percent		0.27	0.23	0.29	0.23
Viscosity Stability at 25°C (77°F), after 16 hr exposure at 150°C (302°F)	percent change		-0.7	-1.6	-2.0	-1.6
Viscosity Temperature Coefficient		0.61	0.61	0.61	0.61	0.61
Coefficient of Expansion	cc/cc/°C	0.00096	0.00096	0.00096	0.00096	0.00096
Thermal Conductivity at 50°C (122°F)	g cal/cm•sec•°C	0.00038		0.00037		
Solubility Parameter[3]			7.4	7.4	7.4	7.4
Solubility in Typical Solvents						
Chlorinated Solvents			High	High	High	High
Aromatic Solvents			High	High	High	High
Aliphatic Solvents			High	High	High	High
Dry Alcohols			Poor	Poor	Poor	Poor
Water			Poor	Poor	Poor	Poor

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

XIAMETER™ PMX-200 Silicone Fluid is a high-viscosity polydimethyl-siloxane polymer manufactured to yield essentially linear polymers in a wide range of viscosities.

Description (Cont.)

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 is insoluble in water and many organic products. It is highly soluble in organic solvents such as aliphatic and aro-matic hydrocarbons, and the halo-carbon propellants used in aerosols. The fluid is easily emulsified in water with standard emulsifiers and normal emulsification techniques.

As An Antifoam

The starting level of active material in nonaqueous foam control is 10 ppm. In many cases, the optimal usage level may be 1~100ppm. XIAMETER PMX-200 Silicone Fluid is typically prediluted in a hydro-carbon solvent, such as white spirits, toluene, xylene, diesel, naphtha or another low molecular weight petroleum fraction, and added continuously by metering pump.

As A Conditioning Additive

Additive quantities as low as 0.1% may suffice where XIAMETER PMX-200 Silicone Fluid is to be used as a surface treatment 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.

Handling Precautions

XIAMETER PMX-200 Silicone Fluid 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 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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