XIAMETER® PMX-200 Silicone Fluid, 50-1,000 CS

INCI Name: Dimethicone
Colorless, clear polydimethylsiloxane fluid

FEATURES

- 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

BENEFITS

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

- 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

DESCRIPTION

XIAMETER® PMX-200 Silicone Fluid, 50-1,000 CS 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 CS 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 CS 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 CS 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.

PRODUCT SAFETY INFORMATION

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

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.

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	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)[1,2]	-26 (-15)	-25 (-13)	-25 (-13)
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[3]		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	$1.0x10^{15}$	$1.0x10^{15}$	$1.0x10^{15}$

[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.

USABLE LIFE AND STORAGE

Product should be stored at or below 60°C (140°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.

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.

XIAMETER(R) PMX-200 SILICONE FLUID 50 CS

1. PRODUCT AND COMPANY IDENTIFICATION

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900
Customer Service: (989) 496-4430
Product Disposal Information: (989) 496-6315
CHEMTREC: (800) 424-9300

MSDS No.: 04088910 Revision Date: 2011/11/14

Generic Description: Silicone
Physical Form: Liquid
Color: Colorless
Odor: Characteristic odor

NFPA Profile: Health 0 Flammability 1 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause temporary redness and discomfort.

Skin: No significant irritation expected from a single short-term exposure.

Inhalation: No significant effects expected from a single short-term exposure.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: No known applicable information.

Inhalation**:** No known applicable information.

Oral: No known applicable information.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

XIAMETER(R) PMX-200 SILICONE FLUID 50 CS

3. COMPOSITION/INFORMATION ON INGREDIENTS

None present. This is not a hazardous material as defined in the OSHA Hazard Communication Standard.

4. FIRST AID MEASURES

Eye:	If irritation occurs, flush eye(s) with lukewarm gently flowing water for 5 minutes. Obtain medical attention.
Skin:	No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.
Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Oral:	If irritation or discomfort occur, obtain medical advice.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

Flash Point:	> 248 °F / > 120 °C (Closed Cup) > 482 °F / > 250 °C (Cleveland Open Cup)
Autoignition Temperature:	Not determined.
Flammability Limits in Air:	Not determined.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbant. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See Section 8 for Personal Protective Equipment for Spills.

7. HANDLING AND STORAGE

Use with adequate ventilation. Avoid eye contact.

Use reasonable care and store away from oxidizing materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation:	None should be needed.
General Ventilation:	Recommended.

Personal Protective Equipment for Routine Handling

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Washing at mealtime and end of shift is adequate.
Suitable Gloves:	Handle in accordance with good industrial hygiene and safety practices.
Inhalation:	No respiratory protection should be needed.
Suitable Respirator:	None should be needed.

Personal Protective Equipment for Spills

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Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Washing at mealtime and end of shift is adequate.
Inhalation/Suitable Respirator:	No respiratory protection should be needed.
Precautionary Measures:	Avoid eye contact. Use reasonable care.
Comments:	When heated to temperatures above 150 degrees C in the presence of air, product can form formaldehyde vapors. Formaldehyde is a potential cancer hazard, a known skin and respiratory sensitizer, and an irritant to the eyes, nose, throat, skin, and digestive system. Safe handling conditions may be maintained by keeping vapor concentrations within the OSHA Permissible Exposure Limit for formaldehyde.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions. For further information regarding aerosol inhalation toxicity, please refer to the guidance document regarding the use of silicone-based materials in aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact the Dow Corning customer service group.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Liquid
Color:	Colorless
Odor:	Characteristic odor
Specific Gravity @ 25°C:	0.96
Viscosity:	50 cSt
Freezing/Melting Point:	Not determined.
Boiling Point:	> 65 °C
Vapor Pressure @ 25°C:	Not determined.
Vapor Density:	Not determined.
Solubility in Water:	Not determined.
pH:	Not determined.
Volatile Content:	Not determined.
Flash Point:	> 248 °F / > 120 °C (Closed Cup)> 482 °F / > 250 °C (Cleveland Open Cup)
Autoignition Temperature:	Not determined.
Flammability Limits in Air:	Not determined.

Note: The above information is not intended for use in preparing product specifications.

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None.

Materials to Avoid: Oxidizing material can cause a reaction.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Acute Toxicology Data for Product

	Species	Test Results
Oral LD50:	Rat	> 15,400 mg/kg
Dermal LD50:	Rabbit	> 2,000 mg/kg

Special Hazard Information on Components

No known applicable information.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Air: This product is a high molecular weight liquid polymer which has a very low vapour pressure (<1 mm Hg). As a result it is unlikely to become an atmospheric contaminant unless generated as an aerosol.

Water: This product has a very low water solubility (< 100 ppb). As it has a specific gravity of < 1, if discharged to water, it will initially form a surface film. As the product is non volatile and has a high binding affinity for particulate matter, it will adsorb to particulates and sediment out.

Soil: If discharged to surface water, this product will bind to sediment. If discharged in effluent to a waste water treatment plant, the product is removed from the aqueous phase by binding to sewage sludge. If the sewage sludge is subsequently spread on soil, the silicone product is expected to degrade.

Degradation: This product, polydimethylsiloxane, degrades in soil abiotically to form smaller molecules. These in turn are either biodegraded in soil or volatilized into the air where they are broken down in the presence of sunlight. Under appropriate conditions, the ultimate degradation products are inorganic silica, carbon dioxide and water vapour. Due to the very low water solubility of this product, standard OECD protocols for ready and inherent biodegradability are not suitable for measuring the biodegradability of this product. The product is removed >80% during the sewage treatment process.

Environmental Effects

Toxicity to Water Organisms:	Based on analogy to similar materials this product is expected to exhibit low toxicity to aquatic organisms.
Fish:	Pleuronectes platessa; 96 Hrs; LC50; 350 mg/l
Daphnia:	Mytilus eduli; 96 Hrs; LC50; > 1,020 mg/l
Daphnia:	Daphnia magna; 48 Hrs; LC50; > 200 mg/l
Daphnia:	Nereis diversicolor; 96 Hrs; EC50; > 10,000 mg/l
Toxicity to Soil Organisms:	Experiments show that when sewage sludge containing polydimethylsiloxane is added to soil, it has no effect on soil micro-organisms, earthworms or subsequent crops grown in the soil.
Bioaccumulation:	This product is a liquid and is a high molecular weight polymer. Due to its physical size it is unable to pass through, or be absorbed by biological membranes. This has been confirmed by testing or analogy with similar products.

Fate and Effects in Waste Water Treatment Plants

This product or similar products has been shown to be non-toxic to sewage sludge bacteria.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal.

14. TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Not subject to DOT.

Ocean Shipment (IMDG)

Not subject to IMDG code.

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Air Shipment (IATA)

Not subject to IATA regulations.

15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances (40 CFR 355):
None.

Section 304 CERCLA Hazardous Substances (40 CFR 302):
None.

Section 311/312 Hazard Class (40 CFR 370):

Acute:	No
Chronic:	No
Fire:	No
Pressure:	No
Reactive:	No

Section 313 Toxic Chemicals (40 CFR 372):
None present or none present in regulated quantities.

Note: Chemicals are listed under the 313 Toxic Chemicals section only if they meet or exceed a reporting threshold.

Supplemental State Compliance Information

California

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

None known.

Massachusetts

No ingredient regulated by MA Right-to-Know Law present.

New Jersey

XIAMETER(R) PMX-200 SILICONE FLUID 50 CS

CAS Number	Wt %	Component Name
63148-62-9	85.0 - 100.0	Polydimethylsiloxane

Pennsylvania

CAS Number	Wt %	Component Name
63148-62-9	85.0 - 100.0	Polydimethylsiloxane

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

http://www.xiameter.com