



XIAMETER™ PMX-200 Silicone Fluid

Polydimethylsiloxane

Features & Benefits

- Water-clear silicone fluid available in viscosities ranging from 0.65 to 60,000 cSt (mm²/s)
- Little change in physical properties over a wide temperature span - a relatively flat viscosity-temperature slope, and serviceability from 40° C up to 200°C
- Excellent water repellency
- Good dielectric properties over a wide range of temperatures and frequencies
- Low surface tension - readily wets clean surfaces to impart water repellency and release characteristics
- Viscosities above 10 mm²/s also exhibit heat stability, oxidation resistance, very low vapour pressures, and high flash point
- Low order of toxicity
- Essentially odourless
- Soluble in a wide range of solvents
- Non-greasy and non-rancidifying

Applications

- Release Material: Used alone or as part of a compounded formula, XIAMETER™ PMX-200 Silicone Fluid provides a non-carbonizing mould release for rubber, plastics, and metal die castings.
- Foam Preventitive: Extremely small amounts of the fluid effectively control foam in many processing operations, especially in non-aqueous systems.
- Mechanical Fluid: Excellent viscosity-temperature characteristics, thermal and chemical stability, shear-breakdown resistance, compressibility, and rubber compatibility make XIAMETER™ PMX-200 Silicone Fluid outstanding for mechanical/ hydraulic uses. Typical uses include hydrolic stabilisers, damping media.
- Surface-active Material: Added to vinyl plastisols, XIAMETER™ PMX-200 Silicone Fluid improves the flow characteristics, de-aerates and lubricates the surface of the completed part.
- Lubricant: The fluid provides excellent lubrication for most plastic and elastomeric surfaces. Lubricity with metals depends upon the combination involved. Care should be taken to select suitable metals for pumps and other items with moving parts.
- Cosmetics and Skin Preparations: XIAMETER™ PMX-200 Silicone Fluid is an important ingredient in hand creams, skin protectants, suntan lotions, and hair grooming aids because it forms a non-greasy, protective film which resists water and waterborne irritants, yet allows the skin to breathe. Literature is available that details the use of the fluid in cosmetics.

Applications (Cont.)

- Polishes and Chemical Specialties: XIAMETER™ PMX-200 Silicone Fluid is used in most automobile and furniture polishes for its ease of application, high gloss with minimum rubbing, and a durable water-repellant film. It is also used in many other speciality formulations, including aerosol starches and fabric conditioners. Additional literature is available.
- Electrical/Electronic Equipment: With excellent dielectric properties, XIAMETER™ PMX-200 Silicone Fluid can be used for both insulating and damping applications.
- Plastic Additive: Small amounts of XIAMETER™ PMX-200 Silicone Fluid can be compounded into plastic in order to impart surface slip or anti-block and to improve the processability of the plastic.

How to Use

Since the applications for XIAMETER™ PMX-200 Silicone Fluid are numerous and varied, application methods and concentration levels must be considered on an individual basis. Contact your local Dow sales office for specific information.

Solubility

The solubility of XIAMETER™ PMX-200 Silicone Fluid varies somewhat according to the viscosity chosen. The low viscosity grades are more completely soluble in a given solvent than are the higher viscosity grades. Since solubility varies, testing is recommended before attempting volume operations. Solubility of the silicone fluid in a number of commonly-used solvents is indicated below. Flammability and toxicity should also be important considerations in the choice of a solvent.

Solvents

Amyl acetate
Benzene
Cyclohexane
Diesel fuel
Ethyl ether
2-Ethyl hexanol
Gasoline
Hexyl ether
Iso-octane
JP-4 jet fuel
Kerosene
Methyl ethyl ketone
Methylene chloride
Methyl ether
Mineral seal oil
Naphtha VM&P
Perchloroethylene
Stoddard solvent
Toluene
Trichloroethylene
Turpentine
Xylene

How to Use (Cont.) Partial Solvents¹

Acetone
Butanol
Dioxane
Ethanol
Heptadecanol
Isopropanol

Non-solvents

Cyclohexanol
Dimethylphthalate
Dodecanol
DOWANOL™ DE
DOWANOL™ EE
Ethylene glycol
Methanol
Paraffin oil
Propylene glycol
Water

¹Partial Solvents - for lower viscosity grades.

Blending

Blending of different viscosity grades of XIAMETER™ PMX-200 Silicone Fluid permits any desired viscosity. Although the fluid is available in a number of standard viscosity grades, occasionally an application will call for a fluid of a viscosity between the standard grades.

To use the blending chart (Figure 3):

1. Draw a line between two points - one on the lefthand scale representing the higher viscosity fluid available; and one on the right, the lower viscosity fluid.
2. Draw another line across the chart at the desired viscosity rating.
3. Draw a third line, vertically through the intersection of the first two lines.
4. Read off the top and bottom scales the proportions of the available fluids to blend to obtain the desired viscosity.

Accuracy will be increased by blending the two fluids which immediately bracket the desired viscosity. If a very accurate blend is required, it may be necessary to adjust the viscosity of the mixture by a second blending.

Handling Precautions

Tests have established that XIAMETER™ PMX-200 Silicone Fluid is essentially non-toxic and nonirritating (although temporary discomfort may result if rubbed into the eye).

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

When stored at or below 60°C in the original unopened containers XIAMETER™ PMX-200 Silicone Fluid has a variable usable life, ranging from 30 to 60 months from the date of production, depending on the viscosity grade (mm²/s) selected.

XIAMETER™ PMX-200 Silicone Fluid has a viscosity lower than 5 mm²/s are flammable. Keep away from heat and open flames.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

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.

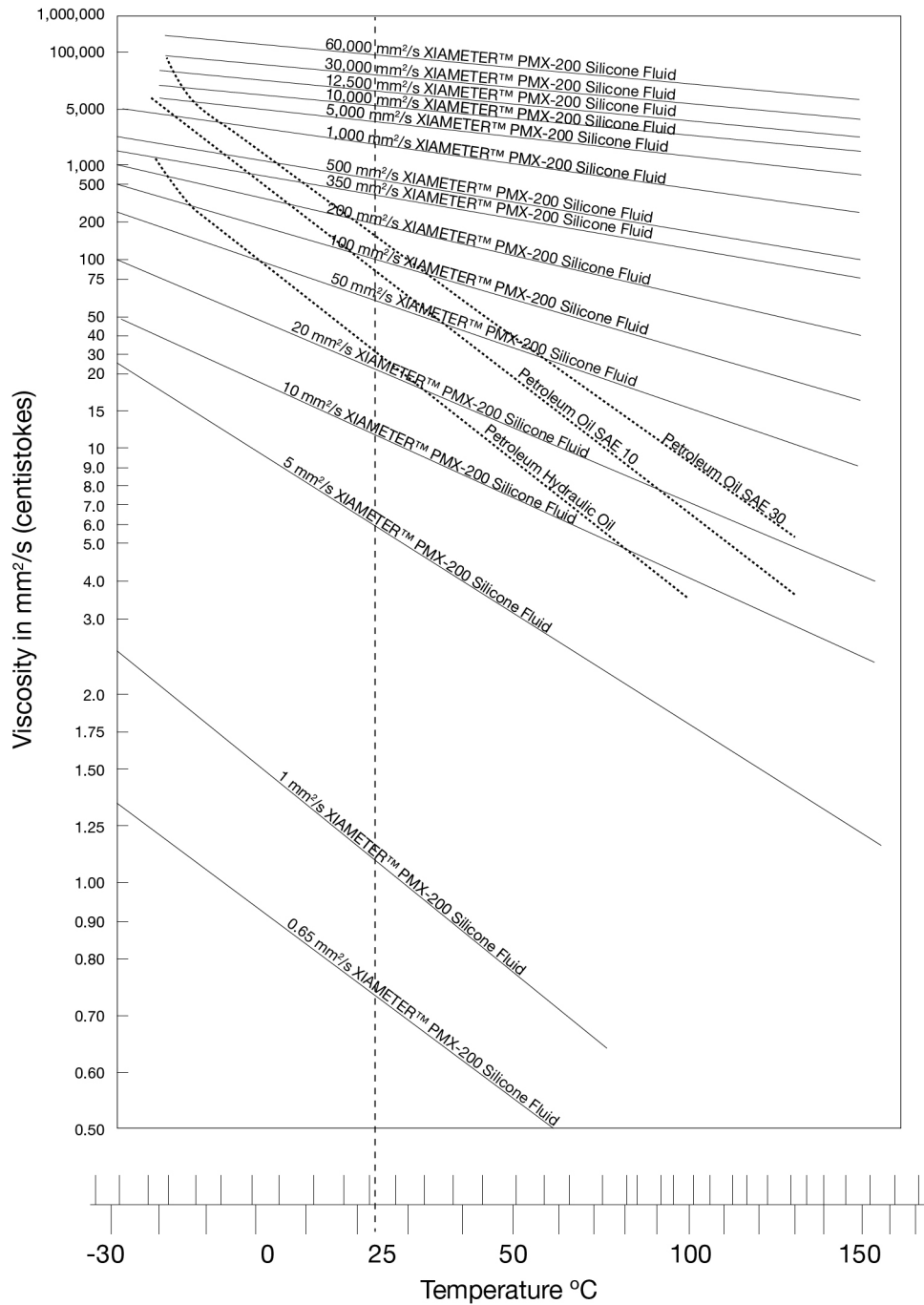


Figure 1: Viscosity temperature slopes for XIAMETER™ PMX-200 Silicone Fluids and some petroleum oils.

Blending (Cont.)

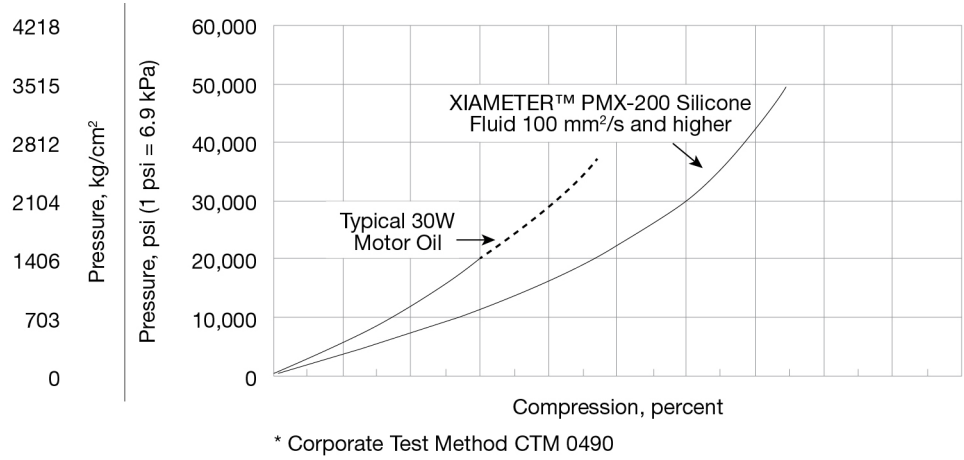


Figure 2: Compressibility of XIAMETER™ PMX-200 Silicone Fluid.

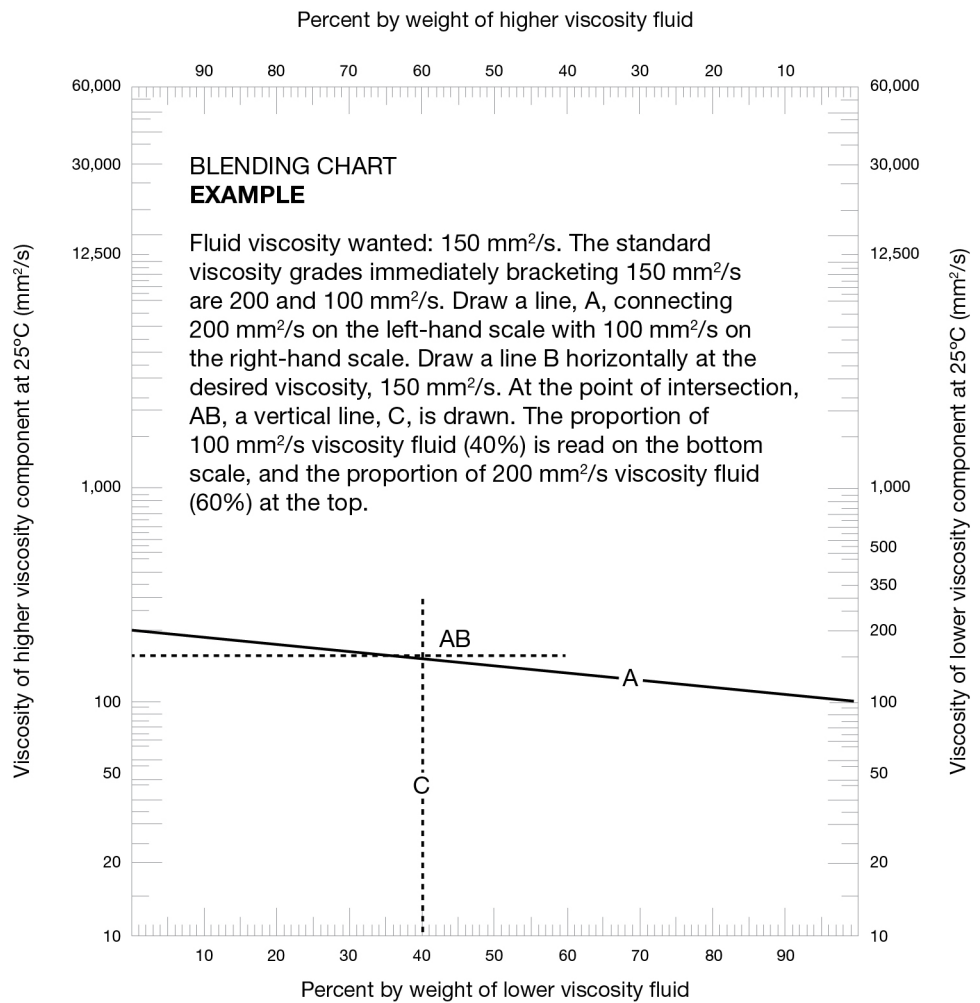


Figure 3: Blending Chart.

Table 1: Typical properties of viscosity grades.

Viscosity at 25°C ¹ mm ² /s (cSt)	Flash point, closed cup ²	Flash point, open cup ³	Pour point ⁴	Specific Gravity at 25°/15.6°C ⁵	Viscosity Temperature Coefficient ⁶	Coefficient of Volume Expansion, ⁷ l/K	Refractive Index ⁸ at 25°C	Surface Tension ⁹ at 25°CmN/m	Thermal Conductivity ¹⁰ at 50°C	Boiling Point
0.65	-3.3°C		-68°C	0.761	0.31	0.00134	1.375	15.9	0.100	100°C at 760 mm (10.1 kPa)
1.0	34.4°C		-100°C	0.818	0.41	0.00134	1.382	17.4		152°C at 760 mm
5.0	> 100°C	135°C	-100°C	0.920	0.55	0.00105	1.397	19.7		120–160°C at 0.5 mm VOLATILITY ¹¹ % max weight loss after 24 hrs at 150°C
10	> 100°C	> 163°C	-100°C	0.934	0.56	0.00108	1.399	20.1	0.134	10
20	> 100°C	> 204°C	-84°C	0.949	0.59	0.00107	1.400	20.6	0.142	10
50	> 100°C	> 285°C	-70°C	0.960	0.59	0.00104	1.401	20.8		2.0
100	> 100°C	> 315°C	-65°C	0.960	0.60	0.00096	1.402	20.9	0.155	0.5
200	> 100°C	> 315°C	-65°C	0.970	0.60	0.00096	1.403	21.0		0.5
300	> 100°C	> 315°C	-65°C	0.970	0.60	0.00096	1.403	21.0	0.155	0.5
350	> 100°C	> 315°C	-65°C	0.970	0.60	0.00096	1.403	21.1	0.159	0.5
500	> 100°C	> 315°C	-50°C	0.971	0.60	0.00096	1.403	21.1		0.5
1000	> 100°C	> 321°C	-50°C	0.971	0.61	0.00096	1.403	21.2	0.159	0.5
5000	> 100°C	> 321°C	-50°C	0.975	0.61	0.00096	1.403	21.4	0.159	2.0
10000	> 100°C	> 321°C	-50°C	0.975	0.61	0.00096	1.403	21.5	0.159	2.0
12500	> 100°C	> 321°C	-46°C	0.975	0.61	0.00096	1.403	21.5	0.155	2.0
30000	> 100°C	> 321°C	-43°C	0.975	0.61	0.00096	1.403	21.5		2.0
60000	> 100°C	> 321°C	-41°C	0.976	0.61	0.00096	1.403	21.5		2.0

1. CTM 0004
2. CTM 0021
3. CTM 0006
4. CTM 0133. Due to the effects of supercooling, this test method yields pour points lower than the temperatures at which these silicone fluids solidify when held at such temperatures for a longer period.
5. CTM 0001A
6. CTM 0747 (1 - (Viscosity at 99°C / Viscosity at 38°C))
7. CTM 0420
8. CTM 0002
9. CTM 0461
10. CTM 0773 O.K. Bates, "Thermal Conductivity of Liquid Silicones", Industrial and Engineering Chemistry, Vol. 41, page 1966, September 1949, units were W/(m.K).
11. CTM 208. Determined by heating a 2 gram sample in a 50 millilitre beaker for 24 hours at 150°C. The heating is carried out in an air circulating oven.

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