

DOW CORNING® 200 Fluid

FEATURES

- 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

Polydimethylsiloxane

APPLICATIONS

- **RELEASE MATERIAL:** Used alone or as part of a compounded formula, DOW CORNING 200 Fluid provides a non-carbonising 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 DOW CORNING 200 Fluid outstanding for mechanical/ hydraulic uses. Typical uses include hydrolic stabilisers, damping media.
- **SURFACE-ACTIVE MATERIAL:** Added to vinyl plastisols, DOW CORNING 200 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:** DOW CORNING 200 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.
- **POLISHES AND CHEMICAL SPECIALITIES:** DOW CORNING 200 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, DOW CORNING 200 Fluid can be used for both insulating and damping applications.
- **PLASTIC ADDITIVE:** Small amounts of DOW CORNING 200 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 DOW CORNING 200 Fluid are numerous and varied, application methods and concentration levels must be considered on an individual basis. Contact your local

Dow Corning sales office for specific information.

Solubility

The solubility of DOW CORNING 200 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

PARTIAL SOLVENTS**

Acetone
Butanol
Dioxane
Ethanol
Heptadecanol
Isopropanol

NON-SOLVENTS

Cyclohexanol
Dimethylphthalate
Dodecanol
Dowanol* DE
Dowanol* EE
Ethylene glycol
Methanol
Paraffin oil
Propylene glycol
Water

* The Dow Chemical Company.

** Partial Solvents - for lower viscosity grades.

BLENDING

Blending of different viscosity grades of DOW CORNING 200 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 DOW CORNING 200 Fluid is essentially non-toxic and non-irritating (although temporary discomfort may result if rubbed into the eye).

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. 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 FROM YOUR LOCAL DOW CORNING SALES REPRESENTATIVE.

USABLE LIFE AND STORAGE

When stored at or below 60°C in the original unopened containers

DOW CORNING 200 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.

DOW CORNING 200 Fluid has a viscosity lower than 5mm²/s are flammable. Keep away from heat and open flames.

RECYCLING AND DISPOSAL OPTIONS

Recycling options include re-use of the material in the same application with or without reprocessing. Reprocessing methods include filtration, absorption and/or distillation depending on the type of contamination. Fuel blending is another form of recycling where the "spent" fluid is mixed with compatible organic solvents or other fuels and used as a substitute feedstock in an industrial furnace such as cement kiln. The silicone fluid will be thermally converted to energy and to a silica residue which may be incorporated into the end product.

Incineration is a viable alternative for direct disposal. Landfilling liquids or fluids is not recommended, however absorbents or other solid materials contaminated with silicone fluid can be buried as solid waste.

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 Corning has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area.

For further information, please consult your local Dow Corning representative.

**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 Dow Corning's products are safe, effective, and fully satisfactory for the intended end use. Dow Corning's sole warranty is that the product will meet the Dow Corning 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. Unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use, Dow Corning disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

Table 1: Typical properties of viscosity grades.

These values are not intended for use in preparing specifications.

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 I/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 760mm (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 0.5mm 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.

Figure 1: Viscosity temperature slopes for DOW CORNING 200 Fluids and some petroleum oils.

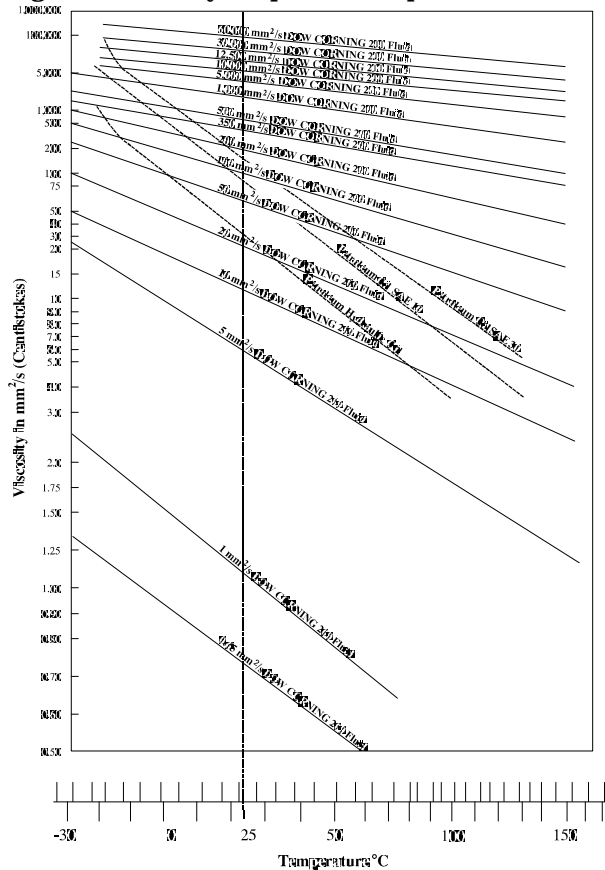


Figure 2: Compressibility of DOW CORNING 200 Fluid.

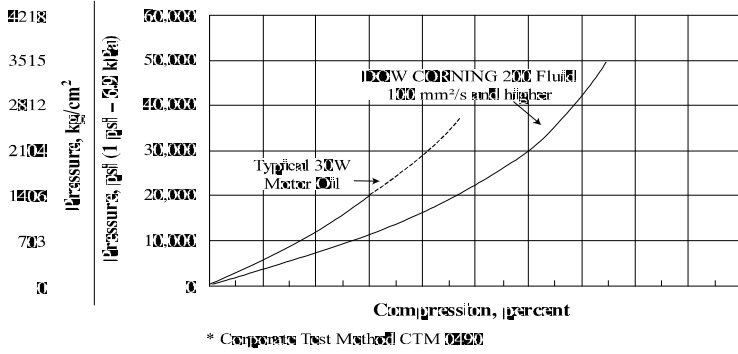


Figure 3: Blending Chart.

