



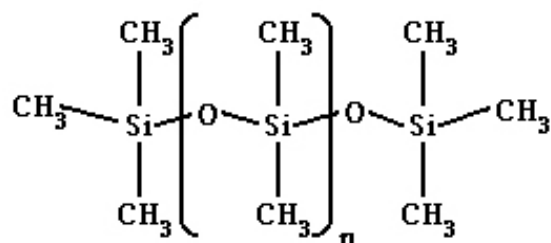
Silicon

Technical grade dimethyl silicone fluids

Description

Dimethyl Silicone Fluids are clear, white, inert and odourless dimethyl polysiloxane fluids. The actual viscosity is controlled within +5% of the desired viscosity. These fluids are manufactured in the viscosity range from 20 cps to 300.000 cps.

In chemical structure Dimethyl silicone fluids are quite different from other fluids having a backbone of silicon-oxygen linkage. The advantage of this is a linkage much stronger than a typical carbon-carbon chain and is more resistant to attack by temperature extremes, oxidation, shear stresses and chemicals than other similar organic fluids and also show good dielectric properties Dimethyl Silicone fluids are soluble in hydrocarbon solvents, chlorinated hydrocarbon solvents and low molecular weight aromatic solvents. They have limited solubility in alcohols, ethers, acetone and glycols (solubility here depending on viscosity).



Polydimethylsiloxane

Applications

Silicone fluids have numerous applications in almost every industry:

- Cosmetics and pharmaceuticals (Creams/lotions/hair care contraceptives)

- Polishes high gloss for automobile and furniture)
- Release agent (plastic/rubber/non-ferrous die casting)
- Liquid springs and shock absorbers
- Heat transfer
- Power transmission
- Rust prevention
- Hydraulic fluids
- Dielectric fluids
- Damping
- Water repellence for aerated cement slabs/bricks
- Paint and coating Additives
- Lubricants
- Textile finishing
- Spinneret cleaner

Benefits

The unique chemical structure permits silicone fluids to perform in applications where other fluids are not suitable.

- Low viscosity/temperature coefficient: they exhibit a smaller degree of change over a wider temperature range than petroleum oils (over 50 times more constant)
- Thermal stability: silicone fluids show excellent stability when exposed to high temperatures. They are stable from -57 °C to 200 °C for extended periods and can exceed this for short periods
- Oxidation stability: oxidation stability of these fluids is excellent up to 200 °C where sludging is eliminated that occurs with mineral oils above 150 °C
- Chemical inertness: they are chemically inert to most common materials

All performance data on this Technical Data Sheet are indicative only and can vary during production.

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- Low flammability: flash point is in the range of 250 °C to 300 °C and auto ignition temperature is ranging from 438 °C to 460 °C
- Low service tension: silicone fluids have unusually low surface tensions that provide easy and efficient spreading, high surface activity and low internal cohesive energies
- Shear stability: shear stability of such fluids can be as much as twenty times that of quality petroleum oils
- Dielectric properties: electrical grade silicone fluids offer excellent dielectric properties that are
- Maintained for prolonged periods, even under adverse operating conditions
- Non-corrosive: silicone fluids contain no acid producing chemicals to cause staining or corrosion
- High compressibility: silicone fluids are highly compressible and thus more suitable for hydraulic purposes in comparison to hydrocarbon systems

Typical performance data

	20	50	100	350	500	1000	10000	60000	1000000
Appearance, clarity and odour	Colourless, clear and odourless								
Specific gravity @ 25 °C	0.940	0.959	0.965	0.973	0.970	0.974	0.975	0.977	0.976
Nominal viscosity @ 25 °C, cPs	20	50	100	350	500	1000	10000	60000	1000000
Refractive index @ 25 °C	1.405	1.402	1.405	1.405	1.403	1.405	1.405	1.405	1.404
Flash point open cup, °C	230	280	>300	>300	>300	>300	>300	>300	>300
Pour point, °C	-60	-55	-55	-50	-50	-50	-50	-50	-40
Auto ignition temperature, °C	>400	>400	>400	>400	>400	>400	>400	>400	>400
Dielectric Strength @ 25°C, volts/mil	-	400	400	400	-	400	-	-	-
Volume Resistivity @ 25°C, ohm-cm	-	1.0x10 ¹⁵	1.0x10 ¹⁵	1.0x10 ¹⁵	-	1.0x10 ¹⁵	-	-	-

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