Technical Data Sheet

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Silfluo LF-221

Dimethyl Silicone Fluid

Description:

Silfluo LF-221 is a series of ultra-high viscosity polydimethylsiloxane (PDMS) fluids (CAS 63148-62-9), available in two grades — 100,000 mPa·s and 500,000 mPa·s — representing the highest viscosity tier of the Silfluo PDMS fluid range.

The extremely long polymer chain length delivers immense shear resistance, tenacious stay-in-place performance under mechanical stress, and thick-film lubrication and damping capability that lower-viscosity PDMS grades cannot replicate.

Flash point ⩾330°C across both grades and low volatiles (⩽1.50%) confirm exceptional thermal stability and minimal evaporative loss under sustained high-temperature service conditions.

Typical Technical Properties:

Silfluo Code:	LF-221-100000	LF-221-500000
Chemical Name:	Polydimethylsiloxane (PDMS)	
Synonyms:	Ultra-High Viscosity Dimethyl Silicone Oil; Dimethicone	
Molecular Formula:	$(C_2H_6OSi)_n$	
Molecular Weight:	Variable (Polymer)	
CAS NO.:	63148-62-9	
EINECS NO.:	613-156-5	
Viscosity (25°C, mPa.s)	100000±5000	500000±25000
Flash Point (opened cup)	≥330°C	≥330°C
Density (25°C, g/cm3)	0.970 ~ 0.980	0.960~0.972
Refractive Index(25°C, nD25)	1.4025 ~ 1.4045	1.4020~1.4040
Volatile (150°C, 2h)/%	≤1.00	≤1.50

Series	Viscosity Range	Primary Characteristics
LF-211	5–50 mPa·s	Ultra-low; fast-spreading; penetrating; volatile-like feel
LF-201	100–60,000 mPa·s	Standard to high; film-forming; general-purpose
LF-221	100,000–500,000 mPa·s	Ultra-high; tenacious; extreme shear resistance; stay-in-place

Applications:

1. Heavy-Duty Damping and Viscous Drives

Used as the working fluid in automotive viscous fan clutches, torsional vibration dampers, and heavy-duty shock absorbers. The flat viscosity-temperature profile and immense shear resistance maintain consistent damping torque across wide operating temperature ranges. Recommended grade: LF-221-100000 to LF-221-500000 depending on required torque specification.

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2. Thermoplastic Internal Lubrication
Blended directly into thermoplastic resins (PP, ABS, PA, PC) during compounding as a non-migrating internal lubricant. Improves melt flow and mold filling, reduces part-to-part friction and surface squeak, and eliminates bloom or plate-out associated with low-molecular-weight lubricant additives. Recommended grade: LF-221-100000.
3. Intensive Hair Care and Serums (Heavy Dimethicone)
Used as substantive high-molecular-weight dimethicone in hair serums, intensive hair masks, and split-end repair treatments. Forms a durable high-gloss protective film that seals cuticles, locks in moisture, and provides exceptional wet and dry detangling performance for severely damaged or chemically processed hair. Recommended grade: LF-221-100000.
4. Specialized Boundary Lubrication

Used in demanding mechanical applications — sliding rails, heavy-load pivots, and extreme-pressure contact points — where standard lubricants squeeze out or drip under pressure. Ultra-high viscosity ensures stay-in-place boundary film retention under prolonged mechanical load. Recommended grade: LF-221-100000 to LF-221-500000.
5. High-Tack Antifoam Compounds
Used as heavy base component in formulating specialized heavy-duty antifoam compounds for extreme processing environments involving severe agitation, high-temperature foaming systems, and non-aqueous industrial process streams. Recommended grade: LF-221-500000.

Package &Storage:
In 200kg drum and 950kg, 1000kg IBC.
Keep in cool, dry and ventilated place. Keep away from sunlight and fire sources. Keep in unopened containers, shelf life is 24 months from the date of production. It is shipped as non-hazardous substance. Storage beyond the shelf life does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

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