# Technical Data Sheet

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# Silfluo LF-PM13

Phenyl Siloxane

## Description:

Silfluo LF-PM13 is a highly purified triphenyl(trimethylsilyloxy)siloxane oligomer — a low-molecular-weight, phenyl-rich siloxane with a fixed structure rather than a broad-distribution polymer chain, delivering a precisely defined refractive index of 1.498 and a low viscosity of 15 mPa • s.

Its oligomeric nature, combined with a high proportion of phenyl groups, produces a combination not achievable with standard phenylmethyl polymer fluids: high refractive index (~1.50), ultra-low viscosity, and cyclic siloxane content (D4/D5/D6 < 0.1%), the last of which is a direct compliance requirement for cosmetic use under EU REACH Regulation and increasingly under China and UK regulatory frameworks.

LF-PM13 is non-reactive and fully non-crosslinkable — it functions as a high-RI blending component, optical matching fluid, emollient, or dielectric additive across systems, compatible with addition-cure silicones, condensation-cure silicones, organic resins, and cosmetic waxes without catalyst interference.

## Typical Technical Properties:

| Silfluo Code: | LF-PM13 |
|---|---|
| Chemical Name:<br>Synonyms: | Triphenyl(trimethylsilyloxy)siloxane<br>Phenyl Siloxane Oligomer; High-Index Phenyl Siloxane; Phenyl-Modified Silicone Fluid; |
| Appearance | Colorless transparent liquid |
| Viscosity (25°C, mPa.s) | 15 |
| Refractive Index(25°C, nD25) | 1.498 |
| Cyclic Siloxane Content (D4/D5/D6) | ＜0.1% |

## Features

- Low viscosity (15 mPa • s) : highest spreadability and processability in the LF-PM phenyl silicone fluid series
- High refractive index (1.498) : comparable to LF-PM12D at significantly lower viscosity
- D4/D5/D6 cyclic siloxane content < 0.1%: EU REACH compliant; suitable for EU, UK, and regulated cosmetic markets
- Thermal stability to 250–300° C: equivalent to LF-PM12 polymer series
- Fully non-reactive: compatible with addition-cure, condensation-cure, and organic resin systems without catalyst interference

## Applications

1. Cosmetics and Personal Care

LF-PM13 is used as a high-gloss emollient in hair serums, lipsticks, lip glosses, liquid foundations, and skincare formulations where both optical gloss (RI ~1.498) and strict cyclic siloxane compliance (D4/D5/D6 < 0.1%) are required simultaneously. Low viscosity (15 mPa • s) delivers rapid spreading, a non-greasy skin feel, and good water repellency. REACH compliance on cyclic siloxanes addresses EU Annex XVII restrictions on D4 and D5 in wash-off and leave-on cosmetics, making LF-PM13 a suitable option over standard phenyl silicone fluids for EU and UK markets. Confirm current applicable regulatory limits and test method requirements with your regulatory team before product registration.

2. Optical Matching and LED Encapsulant Blending

Used as a high-RI optical matching fluid for fiber optic coupling, LED chip encapsulation, and optical lens assembly where RI ~1.498 reduces interface reflection losses. Functions as a low-viscosity RI-tuning diluent in two-part addition-cure or condensation-cure optical encapsulant formulations — low viscosity reduces compound processing viscosity and improves bubble release during potting. Non-reactive nature eliminates any risk of Pt catalyst poisoning or interference with crosslink stoichiometry. Verify compatibility and absence of bleed-out or phase separation in cured encapsulant systems via accelerated aging and optical transmission testing.

3. High-Performance Industrial Coatings

Used as a heat-resistant, anti-corrosion additive in industrial coatings for exhaust systems, engine components, and marine protective finishes where continuous service temperature reaches 250–300° C. Broad compatibility with organic resins (epoxies, acrylics, polyimides) allows blending without phase separation; phenyl groups contribute thermal oxidative stability and surface hydrophobicity to the cured coating film.

4. Electronic Dielectric Fluids and Conformal Coatings

Used as a thermally stable dielectric fluid and conformal coating base for sensitive electronics in extreme thermal environments. Low viscosity ensures complete substrate penetration and void-free coverage; high phenyl content provides dielectric stability and thermal resistance at operating temperatures where standard PDMS-based dielectrics degrade.

5. High-Temperature Specialty Lubricants

Formulated into lubricating oils and greases for high-temperature machinery, bearings, and mechanisms where the combination of low base viscosity, thermal stability to 300° C, and chemical inertness is required. Phenyl groups raise the oxidative stability relative to PDMS-based lubricant base oils.

## Package &Storage:

In 200kg drum, 950kg IBC.

Keep in cool, dry and ventilated place. Keep away from sunlight and fire sources. Keep in unopened containers, shelf life is 30 months from the date of production. 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.