Technical Data Sheet

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Silfluo LF-VPDMS

Vinyl Silicone Fluid (Divinyl-terminated)

Description:

Silfluo LF-VPDMS is a series of vinyl-terminated polydimethylsiloxane polymers (CAS 68083-19-2), the foundational base polymer for platinum-catalyzed addition-cure silicone systems, available in viscosity grades from 100 to 100,000 mPa·s with a custom grade (LF-VPDMS-X) available on request.

Terminal vinyl groups on both chain ends react with Si–H crosslinkers (LF-H101H, LF-H101L, LF-H101TS) via Pt-catalyzed hydrosilylation to form the cured siloxane elastomer network with no volatile by-products and zero shrinkage on cure — a fundamental distinction from condensation-cure (RTV/OH polymer) systems.

Vinyl content (mol%) decreases with increasing viscosity/molecular weight, as the two terminal vinyl groups represent a smaller proportion of the longer chain; this relationship determines the Si–H to vinyl stoichiometric ratio required for crosslinker calculation at each grade.

Typical Technical Properties:

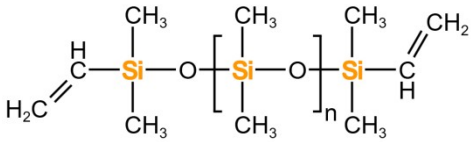
Silfluo Code:	LF-VPDMS -100	LF-VPDMS -200	LF-VPDMS -245	LF-VPDMS -300	LF-VPDMS -350	LF-VPDMS -500	LF-VPDMS -1000
Chemical Name:	Vinyl-Terminated Polydimethylsiloxane						
Synonyms:	Vinyl Silicone Oil; Vinyl Silicone Fluid; Vi-PDMS; Di-vinyl terminated silicone oil; α,ω-Divinyl polydimethylsiloxane; Di-vi PDMS; Divinyl-terminated PDMS						
CAS NO.:	68083-19-2						
Viscosity (25°C, mPa.s)	100±5	200±10	245±15	300±15	350±20	500±25	1000±50
Vinyl Content, mol%	2.86±0.03	1.89±0.03	1.70±0.03	1.54±0.03	1.51±0.03	1.16±0.05	0.86±0.05
Volatile (150°C, 3h)/%				≤1.00			

Item	LF-VPDMS -2000	LF-VPDMS -5000	LF-VPDMS -10000	LF-VPDMS -20000	LF-VPDMS -60000	LF-VPDMS -100000	LF-VPDMS -X
Viscosity (25°C, mpa.s)	2000±100	5000±250	10000±500	20000±1000	60000±3000	100000±5000	X[a]
Vinyl Content, mol%	0.62±0.03	0.43±0.03	0.35±0.03	0.27±0.03	0.22±0.03	0.16±0.03	/
Volatile (150°C, 3h)/%				≤1.00			

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Chemical Structure:



Vinyl silicone oil of various viscosity can be customized.

Applications:

1. Addition-Cure LSR and HTV Silicone Rubber

Used as primary base polymer in Pt-catalyzed LSR and HTV elastomer formulations. Terminal vinyl groups react with Si－H crosslinker under Pt catalysis; vinyl content (mol%) and crosslinker Si－H to vinyl stoichiometric ratio determine crosslink density, hardness, elongation, and tear strength of the cured elastomer. Recommended grades: LF-VPDMS-500 to LF-VPDMS-10000 for standard LSR; LF-VPDMS-10000 to LF-VPDMS-100000 for HTV.

2. Electronic Potting, Encapsulation, and LED Encapsulants

Used as base resin in two-part addition-cure potting compounds, thermal conductive adhesives, and LED encapsulants. Addition cure produces no volatile by-products and zero shrinkage, eliminating void formation and mechanical stress on sensitive components during cure. Deep-section cure proceeds without moisture dependency. Recommended grades: LF-VPDMS-500 to LF-VPDMS-5000 depending on target compound viscosity.

3. Silicone Release Coatings

Used as film-forming base polymer in solvent-free addition-cure release liner coatings for paper and film substrates. Low-viscosity grades enable thin, uniform coating at high line speeds. Recommended grades: LF-VPDMS-100 to LF-VPDMS-500.

4. Hybrid Copolymer Synthesis and Organic Resin Modification

Used as vinyl-functional silicone block for copolymerization with polyurethane, acrylic, and other organic polymer systems via hydrosilylation or free-radical mechanisms, imparting weatherability, UV resistance, and flexibility to the organic matrix. At loading levels of 5－10%, used as reactive toughening additive in epoxy and acrylic resin systems.

Formulation Notes:

When used as base polymer, LF-VPDMS typically constitutes 50－100% of the resin matrix.

When used as reactive modifier or toughening additive, typical loading is 5－10%.

Calculate Si－H crosslinker addition based on vinyl content (mol%) of the specific grade and target Si－H to vinyl molar ratio (typically 1.0－2.0:1 depending on required cure profile and mechanical properties).

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

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containers, shelf life is 36 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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