Technical Data Sheet

www.silfluosilicone.com

Silfluo LF-H101H

High Hydrogen Silicone Fluid

Description:

Silfluo LF-H101H is 100% active polymethylhydrogensiloxane (PMHS, CAS 63148-57-2), a linear polysiloxane with reactive Si—H groups distributed along the backbone at hydrogen content ⩾1.5 wt%.

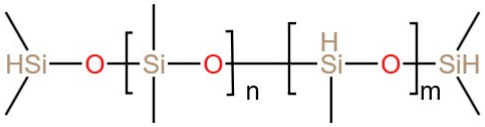
Under platinum catalysis, pendant Si—H groups undergo hydrosilylation with olefinic double bonds; under tin or acid catalysis, they undergo dehydrogenative condensation with hydroxyl-bearing substrates, releasing hydrogen gas. Both reaction pathways form covalent Si—C or Si—O—substrate bonds respectively.

The 100% active, solvent-free fluid is used as crosslinker in addition-cure silicone elastomers, as synthetic intermediate for modified silicone fluids, and as hydrophobing agent applied directly or via emulsion to inorganic and organic substrates.

Typical Technical Properties:

Silfluo Code:	LF-H101H
Chemical Name:	Methyl Hydrogen silicone fluid
Synonyms:	Polymethylhydrogensiloxane (PMHS); Hydrogen Silicone Oil
CAS NO.:	63148-57-2
Appearance	Colorless transparent liquid
Molecular Formula:	$(CH_3)_3SiO[(CH_3)HSiO]_nSi(CH_3)_3$
Refractive Index(25°C, nD25)	1.3900 ~ 1.4000
Viscosity (25°C, mpa.s)	15-50
Hydrogen Content, wt%	≥1.5%
Density (25°C):	0.98-1.02
Volatiles(%):	⩽1
pH Value	6.0-7.0

Chemical Structure:



Various viscosity and hydrogen can be customized.

Applications:

1. Addition-Cure Crosslinker for LSR and Silicone Elastomers

Used as the primary crosslinking agent in platinum-catalyzed addition-cure liquid silicone rubber (LSR) and silicone elastomer systems. Pendant Si–H groups react with vinyl-terminated PDMS under Pt catalysis to form a 3D siloxane crosslinked network. Crosslink density and mechanical properties are controlled by the Si–H to vinyl ratio and PMHS molecular weight. Inhibitor sensitivity and pot life must be managed; avoid contact with Pt catalyst inhibitors (sulfur, phosphorus, tin compounds, amines).

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2. Synthetic Intermediate for Modified Silicone Fluids
Used as the Si–H reactive backbone for synthesizing polyether-modified silicones (silicone surfactants), long-chain alkyl-modified silicones (e.g., LF-AM11), epoxy-modified silicones, and other functional silicone fluids via platinum-catalyzed hydrosilylation with the corresponding allyl- or vinyl-functional organic reagent.
3. Hydrophobing Agent for Inorganic and Construction Substrates
Applied neat or in dilute solution to glass, ceramics, leather, paper, metals, cement, concrete, and natural stone. Dehydrogenative condensation with surface hydroxyl groups under acid or metal salt catalysis deposits a covalently bonded hydrophobic siloxane film. Apply by spray, brush, or immersion; cure conditions (catalyst type, temperature, time) should be optimized for substrate and required durability. Note: hydrogen gas is released during condensation with hydroxyl surfaces — ensure adequate ventilation.
4. Dry Powder Anti-Caking Treatment
Used as moisture-proof, anti-caking surface coating for dry chemical fire extinguishing powders. PMHS treatment reduces powder surface energy and prevents moisture absorption, maintaining long-term flowability and discharge performance.
5. Textile and Fiber Finishing
Formulated into aqueous emulsion and applied to cotton, linen, silk, acrylic, and polyester fabrics by padding or exhaust process. Co-cured with hydroxyl silicone emulsion under heat and catalyst to form durable water-repellent (DWR) and softening finish on fiber surfaces.
6. Color Cosmetics and Oily Foundations
Used as hydrophobic agent, internal lubricant, and anti-sticking additive in oily foundations and color cosmetic formulations, improving water resistance, skin slip, and pigment dispersion stability.

Grade	Termini	Pendant Si-H	H Content	Network Topology	Primary Use
LF-H101H	Trimethylsilyl	High density	≥1.5 wt%	Dense 3D	LSR crosslinker; hydrophobing
LF-H101L	Trimethylsilyl	Diluted	0.1–1.5 wt%	Controlled density	Soft LSR; bulky grafting
LF-H101S	Trimethylsilyl (methyl)	Pendant only	0.03–1.2 wt%	Comb-type	Grafting backbone; PU foam stabilizer
LF-H101T	Si-H terminated	None	0.009–0.80 wt%	Linear extension	ABA block copolymer; chain extension
LF-H101TS	Si-H terminated	Yes	0.28–1.0 wt%	Terminal + pendant — combined	High-density fast-cure LSR; PSA; release coating

Package &Storage:
In 50kg, 200kg drum and 1000kg IBC.

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Keep in cool, dry and ventilated place. Keep away from sunlight and fire sources. Keep in unopened containers, shelf life is 12 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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