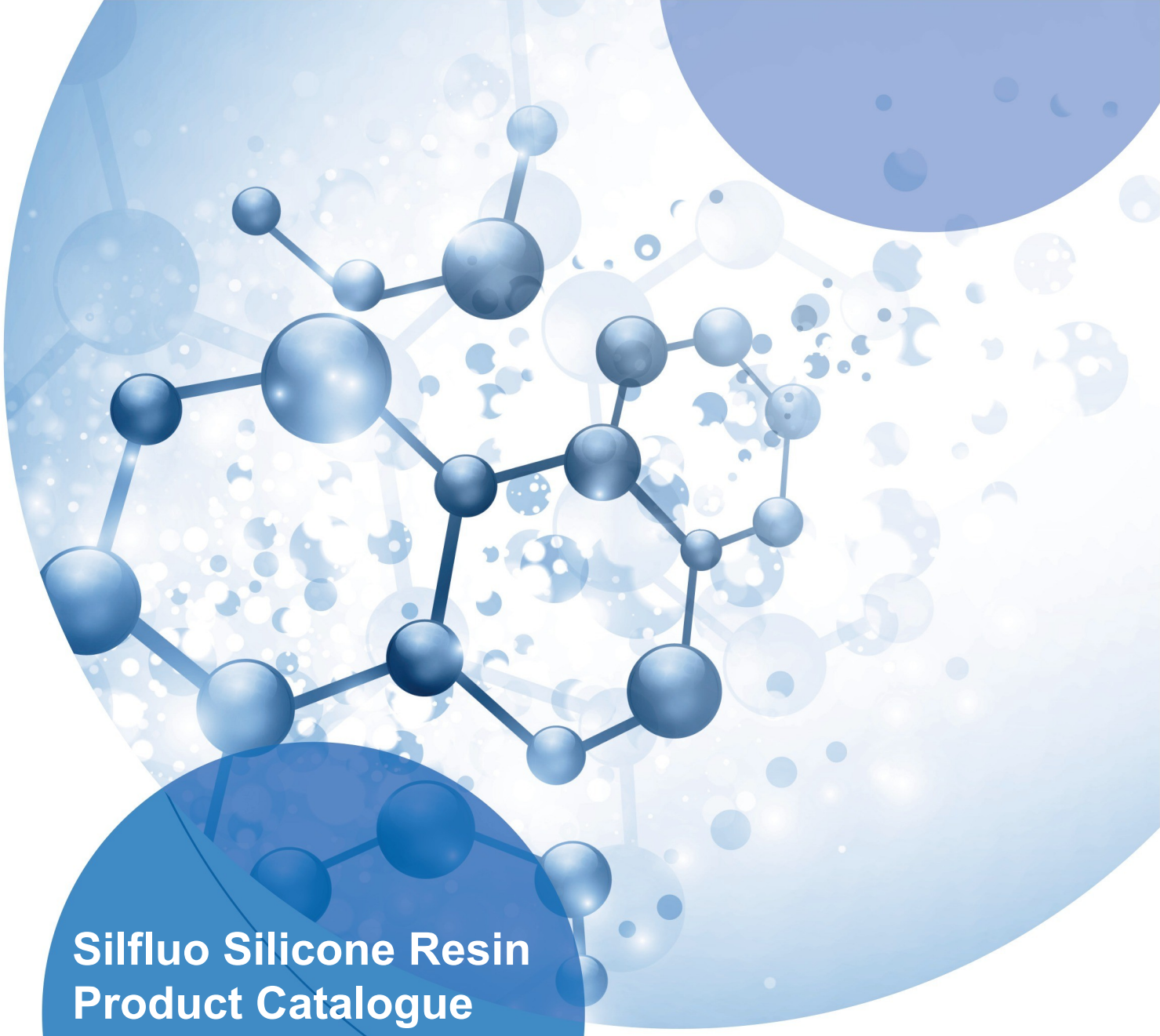


# Silfluo Silicone Resin Product Catalogue

Nanjing Silfluo New Material Co., Ltd.

Silfluo

www.silfluosilicone.com

# SILICONE RESINS FROM SILFLUO

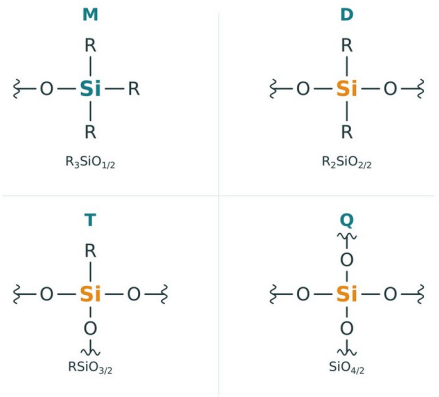
## Silfluo supplies silicone resins as binders and modifiers for heat-resistant coatings, electrical insulation and laminates, and MQ and specialty resins that build strength, tack, hardness and refractive index into silicone systems.

Silicone resins are three-dimensional polysiloxane networks built mainly from trifunctional (T) and tetrafunctional (Q) siloxane units. Methyl groups give hardness and water repellency; phenyl groups add thermal stability, flexibility and compatibility with organic resins.

The cured Si–O–Si network keeps its properties at temperatures where organic binders break down, and it resists weathering, moisture and electrical stress. Copolymers with epoxy, acrylic, alkyd and polyester resins combine these properties with the cure and adhesion of the organic resin.

MQ resins combine monofunctional M units ($R_3SiO_{1/2}$) with tetrafunctional Q units ($SiO_{4/2}$). The Q units form a compact silicate core; the M units cap it and make the resin soluble in silicone fluids and organic solvents. The M/Q ratio sets molecular size, hardness and compatibility.

Replacing part of the methyl groups in the M units with vinyl or Si–H groups lets the resin take part in platinum-catalyzed addition cure. Phenyl-rich resins raise the refractive index of encapsulants. Polymethylsilsesquioxane (PMSQ) is a fully crosslinked T resin supplied as spherical microparticles.




M, D, T and Q units (R = organic group)

**500 °C**
for 3 h with leafing aluminum (4:1), LR-H and LR-S grades

**≥55 kV/mm**
breakdown strength of LR-163

**0.60–1.5**
M/Q ratio across the MQ, MQV and MQH grades

**1.5420**
highest refractive index, LR-PV101 grades

## Grade index

Part 1 02 · Part 2 12 · Selecting a grade 20 · Quality 21 · Contact 23

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LR-021 | 04 | LR-608 | 04 | LR-M123 | 07 | LR-MQV Powder | 15 |
| LR-030 | 05 | LR-610 | 16 | LR-M124 | 07 | LR-PH101 | 16 |
| LR-037 | 08 | LR-E168 | 09 | LR-M125 | 07 | LR-PV101 | 15 |
| LR-038 | 08 | LR-E169 | 09 | LR-M161 | 07 | LR-S161 | 06 |
| LR-131 | 08 | LR-E212 | 09 | LR-M163 | 07 | LR-S164 | 06 |
| LR-152 | 04 | LR-EP167 | 09 | LR-M164 | 08 | LR-SRH series | 15 |
| LR-160 | 04 | LR-H160 | 05 | LR-MQ Liquid | 14 | LR-TMP10 | 08 |
| LR-162 | 05 | LR-H161 | 06 | LR-MQ Powder | 14 | LR-TMS | 16 |
| LR-163 | 05 | LR-H167 | 06 | LR-MQH | 15 | | |
| LR-240/241/242 | 09 | LR-H168 | 06 | LR-MQV Liquid | 14 | | |



# 01

PART 1

# SILICONE RESINS FOR COATINGS & ELECTRICAL INSULATION

Solvent-borne, solvent-free, solid and waterborne grades for heat-resistant coatings, Class H insulation, mica laminates and powder coatings

## PRODUCT FAMILIES


| | | | |
|---|---|---|---|
| 01 | **Methyl Silicone Resins** | LR-021 · LR-152 · LR-608 | p. 04 |
| 02 | **Methyl Phenyl Silicone Resins** | LR-160 · LR-162 · LR-163 · LR-030 | p. 04 |
| 03 | **Heat-Resistant and Air-Drying Resins** | LR-H160 · LR-H167 · LR-H168 · LR-S164 · LR-H161 · LR-S161 | p. 05 |
| 04 | **Modified Silicone Resins** | LR-M123 · LR-M124 · LR-M125 · LR-M161 · LR-M163 · LR-M164 | p. 07 |
| 05 | **Solvent-Free and Solid Resins** | LR-131 · LR-037 · LR-038 · LR-TMP10 · LR-240/241/242 | p. 08 |
| 06 | **Silicone Resin Emulsions** | LR-E168 · LR-E169 · LR-EP167 · LR-E212 | p. 09 |

# PRODUCT OVERVIEW



| Grade | Type and form | Electrical insulation | Mica & laminates | Heat-resistant coatings | Appliance coatings | Resin modification | Powder & coil coatings |
|---|---|---|---|---|---|---|---|
| LR-021 | Methyl, solution 50% | | ● | | | | |
| LR-152 | Methyl, solution 50% | | ● | | | | |
| LR-608 | Methyl, solution 80% | | ● | | | | |
| LR-160 | Methyl phenyl, solution 50% | ● | | ● | | | |
| LR-162 | Methyl phenyl, solution 50% | ● | | ● | | | |
| LR-163 | Methyl phenyl, flexible, 50% | ● | ● | ● | | | |
| LR-030 | Silicone resin, solution 50% | ● | ● | | | | |
| LR-H160 | Methyl phenyl, solution 60% | | | ● | | ● | |
| LR-H167 | Methyl phenyl, solution 70% | | | ● | | ● | |
| LR-H168 | Methyl phenyl, solution 80% | | | ● | | ● | |
| LR-S164 | Air-drying, solution 50% | | | ● | | ● | |
| LR-H161 | Air-drying, solution 50% | | | ● | | ● | |
| LR-S161 | Air-drying, solution 50% | | | ● | | | |
| LR-M123 | Epoxy-modified, 50% | ● | | ● | | | |
| LR-M124 | Acrylic-modified, 50% | ● | | ● | | | |
| LR-M125 | Alkyd-modified, 50% | ● | | ● | | | |
| LR-M161 | Polyester-modified, 50% | ● | | ● | ● | | |
| LR-M163 | Acrylic-modified, 50% | | | ● | | | |
| LR-M164 | Epoxy-modified, 50% | | | ● | ● | | |
| LR-131 | Alkoxy resin, solvent-free | | | ● | ● | | |
| LR-037 | Methyl phenyl alkoxy, solvent-free | | | | | ● | |
| LR-038 | Methyl phenyl, solvent-free | ● | ● | ● | | | |
| LR-TMP10 | Silanol intermediate, solid | | | ● | | ● | ● |
| LR-240/241/242 | Phenyl methyl, solid | | | ● | | ● | ● |
| LR-E168 | Methyl phenyl emulsion, 50% | | | ● | ● | | |
| LR-E169 | Methyl emulsion, 50% | | | ● | ● | | |
| LR-EP167 | Epoxy-modified emulsion, 50% | | | ● | | | |
| LR-E212 | MQ emulsion, 60% (PU mold release) | | | | | | |

● main application in the grade's TDS. Solids in % by weight.

# 01 Methyl Silicone Resins

Hard, highly crosslinked binders for mica boards, glass fiber laminates and high-temperature adhesives. On sintering they convert to a ceramic residue that keeps adhesion.






## LR-021

Methyl silicone resin, solvent-borne

Silfluo LR-021 is a solvent-based methyl silicone resin at 50±1% solids, viscosity 11–20 s (Flow Cup No. 4, 25 °C), that cures to a hard, crosslinked network. With inorganic fillers it resists high temperatures, and on sintering it converts to Si–O or Si–C bonds and leaves a ceramic residue that keeps adhesion. Main uses are binders for mica and glass fiber boards, refractory adhesives, high-temperature bonding agents and sealants.

Solids
**50±1%**
Viscosity, Flow Cup No. 4, 25 °C
**11–20 s**
Appearance
**Colorless to light yellow, semitransparent**

## LR-152

Methyl silicone resin

COMPARABLE TO*

Wacker Silres K · Momentive TSR127B

Silfluo LR-152 is a methyl silicone resin solution at 50±1% solid content that cures to a rigid, brittle film with heat resistance, electrical insulation and water repellency. Gel time at 200 °C is 10–30 minutes, and mass loss and outgassing during high-temperature cure are low. Main uses are bonding adhesives for rigid mica boards and glass fiber cloth laminates and wear-resistant gloss treatment of marble and industrial floor tiles.

Solids
**50±1%**
Viscosity, Flow Cup No. 4, 25 °C
**11–20 s**
Gel Time at 200 °C
**10–30 min**

## LR-608

High-solids methyl silicone resin

Silfluo LR-608 is a high-solids methyl silicone resin made from multifunctional organosilanes, supplied at 80±2% solids in a toluene-containing solvent, viscosity 400–1,200 s (Flow Cup No. 4, 25 °C). It cures to a hard, abrasion-resistant, insulating film, and on sintering converts to Si–O or Si–C bonds, leaving a ceramic residue that keeps adhesion. Main uses are mica and glass fiber boards, refractory adhesives, sealants and metal coatings.

Solids
**80±2%**
Viscosity, Flow Cup No. 4, 25 °C
**400–1200 s**

# 02 Methyl Phenyl Silicone Resins

Solvent-borne methyl phenyl resins at 50% solids, used as binders for Class H electrical insulation, mica insulation and heat-resistant coatings.




## LR-160

Methyl phenyl silicone resin

COMPARABLE TO*

Wacker SY409 · Dow DC806A · Momentive TSR144, 6209

Silfluo LR-160 is a methyl phenyl silicone resin supplied at 50±1% solids in a toluene-containing solvent, viscosity 20–50 s (Flow Cup No. 4, 25 °C). The cured resin gives heat resistance, moisture resistance and electrical insulation, with higher temperature resistance than LR-162. Main uses are Class H motors, transformer coils, impregnation of Class H glass fiber covered wire, transistor encapsulation and heat-resistant coatings.

Solids
**50±1%**
Viscosity, Flow Cup No. 4, 25 °C
**20–50 s**

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## 02 Methyl Phenyl Silicone Resins (continued)

### LR-162

Methyl phenyl silicone resin

COMPARABLE TO*

Dow DC840, DC431HS · Momentive TSR117

Silfluo LR-162 is a methyl phenyl silicone resin supplied at 50±1% solids in a toluene-containing solvent, with a viscosity of 20–50 s (Flow Cup No. 4, 25 °C). The cured resin provides heat resistance, moisture resistance and electrical insulation, and it dilutes with ketones, esters, toluene or xylene. Used for Class H motors, electrical appliances and transformer coils, transistor encapsulation and heat-resistant coatings.

Solids
**50±1%**

Viscosity, Flow Cup No. 4, 25 °C
**20–50 s**

### LR-163

Flexible methyl phenyl silicone resin

COMPARABLE TO*

Dow DC808 · Momentive TSR116

Silfluo LR-163 is a flexible methyl phenyl silicone resin supplied at 50±1% solids in a toluene-containing solvent, with a viscosity of 15–50 s (Flow Cup No. 4, 25 °C). It cures in ≤2 h at 200 °C, withstands ≥300 h thermal aging at 200 °C and gives breakdown strength of ≥55 kV/mm, or ≥30 kV/mm at 200 °C. Main uses are flexible mica tapes and sheets, varnished glass cloth, motor coil impregnation, glass sleeving and conformal coatings.

Solids
**50±1%**

Viscosity, Flow Cup No. 4, 25 °C
**15–50 s**

Cure, 200 °C on copper
**≤2 h**

Thermal Aging at 200 °C
**≥300 h**

Breakdown Strength, 20 / 200 °C
**≥55 / ≥30 kV/mm**

### LR-030

Silicone resin for mica insulation

Silfluo LR-030 is a silicone resin solution supplied at 50±1% solids in a toluene-containing solvent, with a viscosity of 12–30 s (Flow Cup No. 4, 25 °C). The cured resin provides high-temperature resistance, electrical insulation and moisture resistance, and it dilutes with ketones, esters, toluene or xylene. Used as a binder for rigid molded mica, mica paper and glass-backed mica foil and in Class H motor insulation.

Solids
**50±1%**

Viscosity, Flow Cup No. 4, 25 °C
**12–30 s**

# 03 Heat-Resistant and Air-Drying Resins

High-solids and ambient-curing methyl phenyl resins for heat-resistant paints. Films of resin and leafing aluminum (4:1) withstand 500 °C for 3 h without peeling, cracking or blistering.




### LR-H160

Heat-resistant silicone resin, 60% solids

COMPARABLE TO*

Wacker REN60 (60% solids)

Silfluo LR-H160 is a heat-resistant methyl phenyl silicone resin made from methyl, phenyl and functional silane monomers, supplied at 60±1% solids in a toluene-containing solvent, viscosity ≥500 mPa·s. It is surface dry in ≤2 h, fully cured in 2 h at 180 °C, and with leafing aluminum at 4:1 withstands 500 °C for 3 h. Main uses are coatings for exhaust pipes, precipitators and stoves and modifying alkyd, acrylic, polyester and epoxy resins.

Solids
**60±1%**

Viscosity, 25 °C
**≥500 mPa·s**

Cure
**surface dry ≤2 h; 2 h at 180 °C**

Heat Resistance, Al 4:1
**500 °C, 3 h**

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## 03 Heat-Resistant and Air-Drying Resins (continued)

### LR-H167

Heat-resistant silicone resin, 70% solids

Silfluo LR-H167 is a heat-resistant methyl phenyl silicone resin made from methyl, phenyl and functional silane monomers, supplied at 70±1% solids in a toluene-containing solvent, viscosity ≥600 mPa·s. It is surface dry in ≤2 h, fully cured in 2 h at 180 °C, and with leafing aluminum at 4:1 withstands 500 °C for 3 h. Main uses are coatings for exhaust pipes, precipitators and stoves and modifying alkyd, acrylic, polyester and epoxy resins.

Solids
**70±1%**
Viscosity, 25 °C
**≥600 mPa·s**
Cure
**surface dry ≤2 h; 2 h at 180 °C**
Heat Resistance, Al 4:1
**500 °C, 3 h**

### LR-H168

Heat-resistant silicone resin, 80% solids

COMPARABLE TO*

Wacker REN60

Silfluo LR-H168 is a heat-resistant methyl phenyl silicone resin made from methyl, phenyl and specific silane monomers, supplied at 80±1% solids in a toluene-containing solvent, viscosity ≥2,000 mPa·s. It is surface dry in ≤2 h, fully cured in 2 h at 180 °C, and with leafing aluminum at 4:1 withstands 500 °C for 3 h. Main uses are coatings for exhaust pipes, precipitators and stoves and modifying alkyd, acrylic, polyester and epoxy resins.

Solids
**80±1%**
Viscosity, 25 °C
**≥2000 mPa·s**
Cure
**surface dry ≤2 h; 2 h at 180 °C**
Heat Resistance, Al 4:1
**500 °C, 3 h**

### LR-S164

Air-drying silicone resin

Silfluo LR-S164 is an air-drying silicone resin made from phenyl, methyl and specialty silane monomers, supplied at 50±1% solids with a viscosity of 15–50 s (Ford Cup No. 4, 25 °C). It is surface dry in ≤2 h or cured in 1 h at 180 °C, and with leafing aluminum (4:1) it passes 3 h at 500 °C without peeling, cracking or blistering. Used in heat-resistant coatings for large equipment, alone or blended with alkyd, acrylic, polyester or epoxy resins.

Solids
**50±1%**
Viscosity, Ford Cup No. 4, 25 °C
**15–50 s**
Cure
**surface dry ≤2 h; 1 h at 180 °C**
Heat Resistance, Al 4:1
**500 °C, 3 h**

### LR-H161

Heat-resistant air-drying silicone resin

Silfluo LR-H161 is a heat-resistant, air-drying silicone resin made from methyl- and phenyl-containing monomers and specialty silanes, supplied at 50±1% solids in a xylene-containing solvent. Viscosity is 15–40 s (Ford Cup No. 4, 25 °C), surface drying takes ≤2 h, and a 4:1 varnish/leafing aluminum coating passes 3 h at 500 °C without peeling or cracking. Used for exhaust pipe, precipitator and furnace paints and to modify organic resins.

Solids, 150 °C / 2 h
**50±1%**
Viscosity, Ford Cup No. 4, 25 °C
**15–40 s**
Cure
**surface dry ≤2 h; ≤1 h at 180 °C**
Heat Resistance, Al 4:1
**500 °C, 3 h**

### LR-S161

Ambient-curing methyl phenyl silicone resin

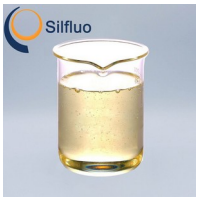
Silfluo LR-S161 is an ambient-curing methyl phenyl silicone resin made from methyl, phenyl and functional silane monomers, supplied as a 50% solids solution with a viscosity of 30–150 s (4# cup, 25 °C). It is surface dry in ≤2 h at room temperature or fully cured in 1 h at 180 °C; with leafing aluminum at 4:1 the coating withstands 500 °C for 3 h. Main uses are heat-resistant, anticorrosive coatings for large equipment and maintenance paints.

Solids
**50±1%**
Viscosity, 4# cup, 25 °C
**30–150 s**
Cure
**surface dry ≤2 h; 1 h at 180 °C**
Heat Resistance, Al 4:1
**500 °C, 3 h**

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# 04 Modified Silicone Resins

Copolymers of silicone with epoxy, acrylic, alkyd and polyester resins. They combine the adhesion, gloss and cure of the organic resin with the heat and weather resistance of silicone.






## LR-M123

Epoxy-modified silicone resin series (LR-M123-4, LR-M123-6)

COMPARABLE TO*

Momentive TSR194

Silfluo LR-M123 series are epoxy-modified silicone resins at 50±1% solids in a xylene-containing solvent, combining silicone heat and weather resistance with epoxy adhesion and chemical resistance. LR-M123-4 (epoxy value 0.06–0.16) favors corrosion resistance and LR-M123-6 (0.02–0.07) heat resistance; both cure at room temperature with polyisocyanates or in 1 h at 180 °C. Used in anticorrosion, insulating and weather-resistant coatings.

Solids
**50±1%**

Viscosity, 4# cup, 25 °C
**30–80 s / 20–60 s**

Epoxy Value
**0.06–0.16 / 0.02–0.07**

Heat Resistance, Al 4:1
**400 °C, 3 h**

## LR-M124

Acrylic-modified silicone resin series (five grades)

Silfluo LR-M124 series are silicone-acrylic hybrid resins made by copolymerizing methyl and phenyl silanols with acrylic monomers, supplied at 50±1% solids in toluene/xylene in five grades from 20–60 s to over 120 s (Flow Cup No. 4). They combine acrylic gloss and adhesion with silicone heat resistance and cure at room temperature with polyisocyanates or in 1 h at 180 °C. Used in heat- and weather-resistant coatings and Class H varnishes.

Solids
**50±1%**

Viscosity, Flow Cup No. 4, 25 °C
**20–60 s to >120 s**

Cure
**surface dry ≤2 h; 1 h at 180 °C**

## LR-M125

Alkyd-modified silicone resin

Silfluo LR-M125 is an alkyd-modified silicone resin made by copolymerizing methyl and phenyl silanols with alkyd resin, supplied at 50±1% solids, viscosity 25–65 s (Flow Cup No. 4, 25 °C). It cures at room temperature (surface dry ≤2 h, hard dry 24 h) or in 1 h at 180 °C, and with leafing aluminum at 4:1 withstands 400 °C for 4 h. Main uses are heat-resistant coatings for service up to 300 °C, weather-resistant paints and Class H varnishes.

Solids
**50±1%**

Viscosity, Flow Cup No. 4, 25 °C
**25–65 s**

Cure
**hard dry 24 h; 1 h at 180 °C**

Heat Resistance, Al 4:1
**400 °C, 4 h**

## LR-M161

Polyester-modified silicone resin

Silfluo LR-M161 is a polyester-modified silicone resin supplied at 50±1% solids in a toluene-containing solvent, with a viscosity of 20–90 s (Flow Cup No. 4, 25 °C). The film, dried in 0.5 h at 250 °C, gives heat resistance, weatherability, hardness, solvent resistance and electrical insulation. Main uses are heat-resistant coatings, Class H insulating varnishes and exterior finishes for household and kitchen appliances.

Solids
**50±1%**

Viscosity, Flow Cup No. 4, 25 °C
**20–90 s**

Drying
**0.5 h at 250 °C**

## LR-M163

Acrylic-modified silicone resin

Silfluo LR-M163 is an acrylic-modified silicone resin made by reacting silicone resin, acrylic resin and functional silane intermediates, supplied at 50±1% solids with a viscosity of 20–80 s (Flow Cup No. 4, 25 °C). The film is hard and glossy with heat resistance up to 230 °C; it is surface dry in ≤2 h or cured in 1 h at 180 °C. Used as a binder for heat-resistant coatings, outdoor high-temperature paints and weather-resistant coatings.

Solids
**50±1%**

Viscosity, Flow Cup No. 4, 25 °C
**20–80 s**

Cure
**surface dry ≤2 h; 1 h at 180 °C**

Heat Resistance, Al 4:1
**400 °C, 3 h**

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### LR-M164

Epoxy-modified silicone resin

Silfluo LR-M164 is an epoxy-modified silicone resin made from silicone intermediates and epoxy resins, supplied at 50±1% solids in a toluene-containing solvent. It combines silicone heat resistance with epoxy hardness and gloss, with a viscosity of 20–90 s (Flow Cup No. 4) and drying in 2 h at 150 °C. Main uses are heat-resistant anticorrosive coatings for pipelines, reactors and boilers, appliance coatings and aluminum profile finishes.

Solids
**50±1%**

Viscosity, Flow Cup No. 4, 25 °C
**20–90 s**

Drying
**2 h at 150 °C**



## 05 Solvent-Free and Solid Resins

Low-viscosity alkoxy-functional resins and solid resins for high-solids, powder and coil coatings, and for adding silicone to acrylic, polyester and epoxy binders.



### LR-131

Solvent-free silicone resin, low molecular weight

COMPARABLE TO*

Wacker SILRES MSE 100

Silfluo LR-131 is a low-molecular-weight, solvent-free silicone resin made by mixed hydrolysis of alkoxysilanes, with about 30% alkoxy content, viscosity 20–200 mPa·s and a flash point of ≥65 °C. It cures at room temperature, releasing methanol, to hard films with low gloss loss and low smoke when heated. Main uses are high-solids heat-resistant coatings for exhausts and engine parts, oven and grill finishes and automotive ceramic coatings.

Viscosity, 25 °C
**20–200 mPa·s**

Alkoxy Content
**~30 wt%**

Flash Point
**≥65 °C**

### LR-037

Reactive methyl phenyl resin, solvent-free

COMPARABLE TO*

Wacker IC232, IC368 · Dow DC3074

Silfluo LR-037 is a solvent-free, reactive methyl phenyl polysiloxane resin with alkoxy groups and a controlled molecular weight distribution, viscosity 80–500 mPa·s and ≤5% volatiles. Added at 30% to acrylic, polyester or epoxy resins, it can raise their continuous heat resistance to 300–350 °C and improve weather resistance. Used as a modifier for heat-resistant coatings and diluted only with hydroxyl-free solvents such as xylene.

Viscosity, 25 °C
**80–500 mPa·s**

Volatile Matter
**≤5%**

### LR-038

Methyl phenyl resin, solvent-free

Silfluo LR-038 is a solvent-free methyl phenyl polysiloxane resin with a viscosity of 80–500 mPa·s and ≤5% volatiles that releases methanol as it cures. The cured resin is hard, flexible and insulating, with high- and low-temperature resistance, water repellency, weatherability and adhesion; it cures at room temperature with a curing agent. Main uses are binders for heat-resistant coatings, laminates, impregnating varnishes and adhesives.

Viscosity, 25 °C
**80–500 mPa·s**

Volatile Matter
**≤5%**

### LR-TMP10

Solid silanol-functional methyl phenyl intermediate

COMPARABLE TO*

Dow DOWSIL™ RSN-6018 · Wacker SY300

Silfluo LR-TMP10 is a 100% active, solid methyl phenyl silicone resin intermediate with reactive silanol groups, a softening point of 90 °C and ≤3% volatiles. The silanol groups condense with hydroxyl groups of acrylic, polyester and epoxy resins, raising heat resistance, UV weatherability and chalking resistance. Main uses are powder coatings, heat-resistant industrial finishes, polysiloxane protective coatings and SMP coil coatings.

Volatile Matter
**≤3%**

Softening Point
**90 °C**

Solubility in Toluene, 1:1
**clear**

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## 05 Solvent-Free and Solid Resins (continued)

### LR-240/241/242

Solid phenyl methyl silicone resins

COMPARABLE TO*

LR-240: Wacker SILRES 604 · LR-241: Wacker SILRES 605

Silfluo LR-240 series (LR-240, LR-241 and LR-242) are solid phenyl methyl silicone resins, colorless to light yellow transparent solids with softening points of 60–100 °C and ≤2% volatiles. Blended or graft-copolymerized into acrylic, polyester or epoxy systems, they raise heat and weather resistance and reduce chalking and cracking. Main uses are powder coatings, heat-resistant industrial coatings (≥15% on solids) and polysiloxane coatings.

Volatile Matter
**≤2%**

Softening Point
**60–100 °C**

Solubility in Toluene, 1:1
**clear**

# 06 Silicone Resin Emulsions

Non-ionic, water-dilutable emulsions for waterborne heat-resistant coatings and for water-based polyurethane mold release.




### LR-E168

Methyl phenyl silicone resin emulsion

COMPARABLE TO*

Wacker Silres MP 50E, Silres REN 50

Silfluo LR-E168 is a non-ionic methyl phenyl silicone resin emulsion, a milky white, water-dilutable liquid at 50±2% solids, viscosity 13–30 s (Flow Cup No. 4, 25 °C). The phenyl content raises heat resistance to 350 °C in clear varnishes and 650–700 °C in pigmented coatings; it is used alone or blended with acrylic, polyester or epoxy resins. Main uses are coatings for boilers, heat pipelines, electric heaters, furnaces and ovens.

Solids, 150 °C / 2 h
**50±2%**

Viscosity, Flow Cup No. 4, 25 °C
**13–30 s**

### LR-E169

Methyl silicone resin emulsion

COMPARABLE TO*

Wacker Silres MPF 52E

Silfluo LR-E169 is a non-ionic methyl silicone resin emulsion, a milky white, solvent-free and water-dilutable liquid at 50±2% solids with a viscosity of 15–40 s (Flow Cup No. 4, 25 °C). Heat resistance reaches 300 °C in clear varnishes and 500 °C in pigmented coatings; it air-dries for handling and reaches full properties when baked at 200–280 °C for 15–60 min. Used in coatings for boilers, heat pipelines, electric heaters, furnaces and ovens.

Solids, 150 °C / 2 h
**50±2%**

Viscosity, Flow Cup No. 4, 25 °C
**15–40 s**

### LR-EP167

Epoxy-modified methyl phenyl silicone emulsion

Silfluo LR-EP167 is a non-ionic, epoxy-modified methyl phenyl silicone resin emulsion, a milky white liquid at 50±2% solids, viscosity 25–40 s (Flow Cup No. 4, 25 °C). Its epoxy groups (epoxy value 0.06–0.16 on solids) crosslink with water-based polyamide or amine curing agents at room temperature; heat resistance reaches 300 °C clear and 500 °C pigmented. Used in salt-spray-resistant high-temperature paints, such as for marine steam pipes.

Solids, 150 °C / 2 h
**50±2%**

Viscosity, Flow Cup No. 4, 25 °C
**25–40 s**

Epoxy Value, on solids
**0.06–0.16**

### LR-E212

MQ silicone resin emulsion for mold release

Silfluo LR-E212 is a non-ionic methyl MQ silicone resin emulsion, a milky white liquid at 60±2% solids, viscosity ≥5,000 mPa·s, stable without separation after 30 min at 3,000 rpm. Diluted with water and applied to the mold, it wets and spreads well and leaves a heat-resistant silicone release film as the water evaporates. Used as a water-based release agent for polyurethane parts, starting at 5 g of emulsion per 1,000 cm² of mold.

Solids, 150 °C / 2 h
**60±2%**

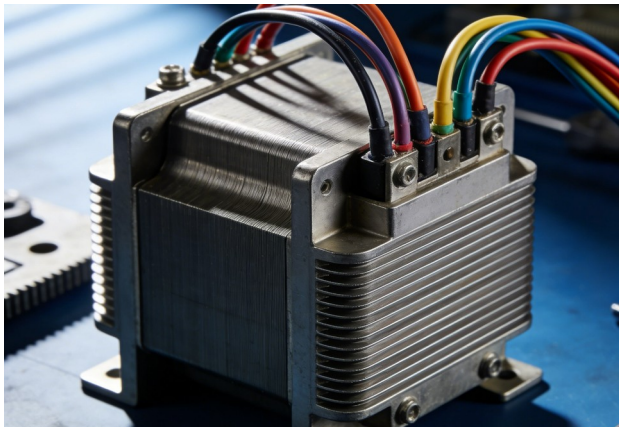
Viscosity, 25 °C
**≥5000 mPa·s**

Stability, 3000 rpm / 30 min
**no separation**

* Comparable grades are given for orientation only and do not mean identical composition or performance; suitability must be confirmed by application testing. Trademarks are the property of their respective owners.

# TYPICAL APPLICATIONS





## Electrical insulation

Class H motors, transformer coils, impregnation of glass fiber covered wire, flexible mica tapes and varnished glass cloth.

GRADES

**LR-160 · LR-162 · LR-163 · LR-030 · LR-M161**



## Industrial heat-resistant coatings

Exhaust pipes, precipitators, furnaces, boilers, heat pipelines and large equipment. Aluminum-pigmented films withstand 500 °C.

GRADES

**LR-H160 · LR-H167 · LR-H168 · LR-S164 · LR-H161 · LR-S161 · LR-E168**



## Appliances and cookware

Heat-resistant finishes for ovens, stoves, grills and kitchen appliance housings.

GRADES

**LR-131 · LR-M161 · LR-M164 · LR-E169**



## Powder and coil coatings

Heat-resistant and weather-resistant powder coatings, silicone-modified polyester coil coatings and polysiloxane protective coatings.

GRADES

**LR-TMP10 · LR-240/241/242**

# WORKING WITH SILICONE RESINS



**Dilution**

Dilute with ketones, esters, toluene or xylene. Diluents must be free of water, acids, alkalis, amines and sulfur-containing impurities, which impair adhesion, drying and film properties. Alkoxy-functional LR-037 takes only hydroxyl-free solvents such as xylene.

**Curing**

Heat-cure grades reach full properties when baked, for example 2 h at 180 °C (LR-H160) or ≤2 h at 200 °C (LR-163). Air-drying grades are surface dry in ≤2 h at room temperature. The LR-M123 and LR-M124 series also cure at room temperature with aliphatic polyisocyanates at 10–20% of the total resin weight.

**Heat-resistance values**

Unless stated otherwise, heat resistance refers to a film of resin and leafing aluminum powder at 4:1, held for 3 h at the stated temperature without peeling, cracking or blistering (LR-M125: 4 h).

**Safety**

Solvent-borne grades contain toluene or xylene and are flammable. Process with explosion-proof ventilation, away from ignition sources and static electricity, and wear suitable protective equipment. See the SDS of each grade.

**Storage**

Store cool, dry and ventilated, away from direct sunlight, acids and alkalis, in the original closed containers. Shelf life is 6 months for most liquid grades and emulsions and 12 months for the LR-240 series.

## Packaging

| Product group | Packaging |
|---|---|
| Solvent-borne and solvent-free resins | 200 kg drums |
| Emulsions (LR-E168, LR-EP167) | 50 kg plastic pails, 200 kg plastic drums |
| Solid resins (LR-240 series) | 50 kg fiber drums with plastic liner |

Packaging is given per grade in the TDS; other pack sizes on request.




# 02

PART 2

# MQ & SPECIALTY SILICONE RESINS

Tackifying, reinforcing and crosslinking resins for silicone adhesives and rubbers, LED and optical encapsulants, and personal care

## PRODUCT FAMILIES


| | | | |
|---|---|---|---|
| 07 | **Methyl MQ Resins** | LR-MQ Liquid · LR-MQ Powder | p. 14 |
| 08 | **Vinyl MQ Resins** | LR-MQV Liquid · LR-MQV Powder | p. 14 |
| 09 | **Hydride and Phenyl Resins** | LR-MQH · LR-SRH series · LR-PV101 · LR-PH101 | p. 15 |
| 10 | **Personal Care Resins and Microspheres** | LR-TMS · LR-610 | p. 16 |

# PRODUCT OVERVIEW



| Grade | Type and form | Silicone PSAs | Addition-cure silicones & rubber | Release & defoamers | LED & optics | Personal care | Coatings & polymer additives |
|---|---|---|---|---|---|---|---|
| **LR-MQ Liquid** | Methyl MQ, solution | ● | ● | ● | | | |
| **LR-MQ Powder** | Methyl MQ, powder | ● | ● | ● | | | |
| **LR-MQV Liquid** | Vinyl MQ, solution or dispersion | ● | ● | | | | |
| **LR-MQV Powder** | Vinyl MQ, powder | ● | ● | ● | | ● | |
| **LR-MQH** | Hydrogen MQ, liquid | | ● | ● | | | |
| **LR-SRH series** | Si–H hybrid resin, liquid | | ● | | | | |
| **LR-PV101** | Phenyl vinyl resin, liquid | ● | | | ● | | |
| **LR-PH101** | Phenyl hydrogen resin, liquid | | | | ● | | ● |
| **LR-TMS** | Trimethylsiloxysilicate, powder or blend | | | | | ● | |
| **LR-610** | PMSQ spherical powder | | | | ● | ● | ● |

● main application in the grade's TDS.

## Solubility of LR-MQ and LR-MQV

| | | | | | |
|---|---|---|---|---|---|
| Hydroxyl silicone fluid | ● | C9–C13 isoparaffins | ● | Paraffin 52 | ○ |
| Methyl silicone oil | ● | Ethanol | ● | PE wax | ○ |
| Vinyl silicone oil | ● | Isopropanol | ● | Water | ○ |
| Toluene | ● | White oil | ○ | Glycerin | ○ |
| Ethyl acetate | ● | Castor oil | ○ | Propylene glycol | ○ |

● soluble (≥20%) ○ insoluble

# 07 Methyl MQ Resins



Trimethylsiloxy-terminated silicate resins with an M/Q ratio of 0.60–0.80, supplied as a solution or as a powder.

## LR-MQ Liquid

Methyl MQ silicone resin, solution

COMPARABLE TO*

Wacker Silres 803

Silfluo LR-MQ Liquid is a methyl MQ silicone resin, a trimethylsiloxy-terminated polysilicate network made from tetraalkoxysilane (Q units) and trimethyl silanes (M units), supplied as a clear solution in toluene or xylene or as a dispersion in PDMS fluid. The resin has an M/Q ratio of 0.60–0.80, molecular weight of 5000±1000 and hydroxyl content of ≤0.5%. Main uses are high-temperature defoamers, PU mold release, silicone PSAs and clear LSR.

M/Q Ratio
**0.60–0.80**

Molecular Weight
**5000±1000**

Hydroxyl Content
**≤0.5%**

Viscosity, 50% in toluene
**4.0 mm²/s**

## LR-MQ Powder

Methyl MQ silicone resin, powder

COMPARABLE TO*

Wacker Silres 803

Silfluo LR-MQ Powder is a solid methyl MQ silicone resin made by co-hydrolysis of tetraalkoxysilane (Q units) and trimethyl-functional silanes (M units), forming a trimethylsiloxy-terminated polysilicate network. It is a free-flowing white powder with 100 µm average particle size, 0.25 g/cm³ bulk density, M/Q ratio of 0.60–0.80 and ≤0.5% hydroxyl content. Main uses are high-temperature defoamers, PU mold release, silicone PSAs and clear LSR.

M/Q Ratio
**0.60–0.80**

Molecular Weight
**5000±1000**

Average Particle Size
**100 µm**

Bulk Density
**0.25 g/cm³**

# 08 Vinyl MQ Resins



MQ resins with vinyl-functional M units that crosslink with Si–H polymers in platinum-catalyzed addition-cure systems.

## LR-MQV Liquid

Methyl vinyl MQ silicone resin, nine standard grades

Silfluo LR-MQV Liquid is a series of methyl vinyl MQ silicone resins supplied as a 75% solution in toluene or as a 1:1 dispersion in silicone oil. Standard grades cover viscosities from 6,300 to 70,000 mPa·s with an M/Q ratio of 0.7–0.9, and the vinyl groups crosslink into platinum-catalyzed addition-cure systems. Main uses are transparent mold-making rubbers, silicone PSAs, glazing polishes and reinforcement of addition-cure silicones.

M/Q Ratio
**0.7–0.9**

Viscosity
**6300–70000 mPa·s**

Vinyl Content
**0.96–13.2%**

Volatiles, LR-MQV6 to MQV10
**≤1%**

| Grade | Viscosity, mPa·s | Vinyl, % |
|---|---|---|
| LR-MQV6 | 6300±500 | 0.96±0.02 |
| LR-MQV7 | 6500±500 | 1.31±0.02 |
| LR-MQV9 | 8000±500 | 1.32±0.02 |
| LR-MQV61 | 6500±500 | 1.94±0.02 |
| LR-MQV10 | 11000±1000 | 1.10±0.02 |

| Grade | Viscosity, mPa·s | Vinyl, % |
|---|---|---|
| LR-MQV19 | 19500±1500 | 1.10±0.02 |
| LR-MQV70 | 70000±10000 | 1.25±0.02 |
| LR-MQV60 | 60000 | 1.6±0.02 |
| LR-MQV101 | 11000±1000 | 13.2±0.2 |

* Comparable grades are given for orientation only and do not mean identical composition or performance; suitability must be confirmed by application testing. Trademarks are the property of their respective owners.

## 08 Vinyl MQ Resins (continued)

### LR-MQV Powder

Vinyl-functional MQ silicone resin, powder

Silfluo LR-MQV Powder is a vinyl-functional MQ silicone resin supplied as a white spherical powder with ≥95% active content, an M/Q ratio of 0.7–1:1 and custom vinyl content. Its vinyl groups react with Si–H crosslinkers by platinum-catalyzed hydrosilylation, so the silicate core raises modulus, hardness and tensile strength of the cured network. Main uses are clear LSR, HCR, release coatings, PSAs, Class H insulation and color cosmetics.

Active Content
**≥95%**
M/Q Ratio
**(0.7–1):1**
Vinyl Content
**to order**
Typical Loading
**1–20 wt%**



# 09 Hydride and Phenyl Resins

Si–H functional resins used as resinous crosslinkers, and phenyl vinyl / phenyl hydrogen resins for high-refractive-index addition-cure encapsulants.




### LR-MQH

Hydrogen-containing MQ silicone resin

Silfluo LR-MQH is a hydrogen-containing MQ silicone resin, a colorless transparent liquid whose Si–H bonds take part in hydrosilylation crosslinking. Grades range from 10 to 3,000 mPa·s and 0.15–0.75 wt% hydrogen, with an M/Q ratio of 1.2–1.5 and ≥80% solids. Used as a crosslinker and filler in addition-cure silicone rubbers, a tackifier in sealants, an intermediate for modified MQ resins and in release agents and defoamers.

M/Q Ratio
**1.2–1.5**
Viscosity, 25 °C
**10–3000 mPa·s**
Hydrogen Content
**0.15–0.75 wt%**
Solids
**≥80%**

### LR-SRH series

Hydride-functional hybrid silicone resins (LR-SRH-08, -50, -80, -95)

Silfluo LR-SRH-08 series (LR-SRH-08, -50, -80 and -95) are hydride-functional hybrid silicone resins with a branched Q/M framework, T-unit modification and reactive Si–H groups. The colorless transparent liquids have hydrogen contents from 0.07 to 1.00 wt% and viscosities of 30–150 mPa·s at 25 °C. Used as resinous crosslinkers with vinyl silicones in platinum-catalyzed addition-cure systems and to build Si–H resin segments into silicone networks.

Hydrogen, -08 / -50
**0.07–0.10 / 0.45–0.55 wt%**
Hydrogen, -80 / -95
**0.75–0.85 / 0.90–1.00 wt%**
Viscosity, 25 °C
**30–150 mPa·s**

### LR-PV101

Phenyl vinyl silicone resin (five grades)

Silfluo LR-PV101 is a series of vinyl-functional phenyl polysiloxane resins, colorless to light yellow clear liquids that cure with Si–H crosslinkers under platinum catalysis. The five grades cover 7,000–60,000 mPa·s, 5.17–5.97% vinyl and refractive indices of 1.5250–1.5420, with ≤1% volatiles (150 °C/3 h) and impurities below 50 ppm. Main uses are LED and optical encapsulants, composites, electrical varnishes and silicone PSAs.

Viscosity, 25 °C
**7000–60000 mPa·s**
Vinyl Content
**5.17–5.97%**
Refractive Index
**1.5250–1.5420**
Volatiles, 150 °C / 3 h
**≤1%**

## 09 Hydride and Phenyl Resins (continued)

### LR-PH101

Phenyl hydrogen silicone resin (three grades)

Silfluo LR-PH101 is a phenyl hydrogen polysiloxane crosslinker that reacts with vinyl silicones under platinum catalysis to form a hard, optically clear network. Three grades cover 40–6,800 mPa·s, 0.22–0.52% hydrogen and refractive indices of 1.4910–1.5400, with ≤1% volatiles (150 °C/3 h). Main uses are high-refractive-index LED and optical encapsulants, composites, electrical insulating varnishes and protective coatings.

Viscosity, 25 °C
**40–6800 mPa·s**

Hydrogen Content
**0.22–0.52%**

Refractive Index
**1.4910–1.5400**

Volatiles, 150 °C / 3 h
**≤1%**



# 10 Personal Care Resins and Microspheres

Trimethylsiloxysilicate film formers for color cosmetics and sun care, and spherical PMSQ powders for light diffusion, feel and powder flow.



### LR-TMS

Trimethylsiloxysilicate (INCI)

Silfluo LR-TMS is a series of trimethylsiloxysilicate (MQ silicone resin) grades for personal care, supplied as 100% active white powders below 150 or 80 µm or as clear blends in cyclopentasiloxane, dimethicone or isododecane. The resin forms a flexible, non-tacky film that gives wash-off resistance and holds pigments in place. Main uses are transfer-resistant color cosmetics, sun care, antiperspirants, hair styling and skin care.

Powder Grades
**100% resin, <150 or <80 µm**

Liquid Blends
**20–50% resin**

Carriers
**cyclopentasiloxane, dimethicone, isododecane**

### LR-610

Polymethylsilsesquioxane spherical powder (five grades)

Silfluo LR-610 is a series of spherical polymethylsilsesquioxane (PMSQ) micropowders, a highly crosslinked (RSiO3/2)n network made by hydrolysis and condensation of organosilanes. The five grades have ≥99% active content and average particle sizes of 0.5–6 µm, and do not dissolve in organic solvents or melt below 400 °C. Typical uses include light diffusion in PS and PC, cosmetics, polymer modification, coatings, inks and powder flow.

Average Particle Size
**0.5–6 µm**

Active Content
**≥99%**

Specific Gravity, 25 °C
**1.3**

Dosage, PS / PC
**0.5–1.0% / 0.25–0.75%**

# APPLICATIONS OF MQ RESINS

MQ resins add strength, tack, hardness and gloss to silicone systems and form flexible films in personal care products. Other resin types, such as methylphenyl, vinyl, phenyl and fluorine-containing MQ resins and MDQ and MTQ resins, can be made to customer requirements.



### Easy to process

Liquid grades and solutions have a low viscosity and mix easily into formulations.

### Transparency and gloss

Clear resins that add gloss to coatings and films.

### Thermal stability

The siloxane backbone withstands high temperatures in heat-resistant uses.

### Weathering and chemical resistance

Resist weathering, UV radiation and chemical attack.



## 01

### Cosmetics and personal care

Film former in color cosmetics, sun care, hair styling and skin care: the resin forms a flexible, non-tacky film that resists water and holds pigments in place. Spherical PMSQ powder improves feel and powder flow.

GRADES

**LR-TMS · LR-MQV Powder · LR-610**

## 02

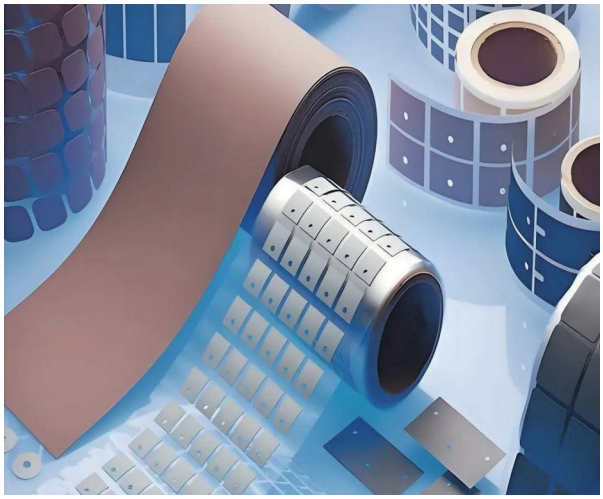
### Coatings and additives

Improves gloss, adhesion and durability in paints and coatings. LR-PH101 is used in protective coatings, and PMSQ microspheres in coatings and inks.

GRADES

**LR-PH101 · LR-610**





## 03

### Adhesives

Tackifying resin in silicone pressure-sensitive adhesives (PSAs): it raises adhesion and tack, and the resin type and loading set the tack and peel force.

GRADES

**LR-MQ Liquid · LR-MQ Powder · LR-MQV Liquid · LR-MQV Powder · LR-PV101**



## 04

### Rubber and elastomers

Reinforcing resin for clear liquid silicone rubber, HCR and transparent mold-making rubbers: the silicate core raises the modulus, hardness and tensile strength of the cured network. Si–H resins act as crosslinkers in addition-cure systems.

GRADES

**LR-MQ Liquid · LR-MQ Powder · LR-MQV Liquid · LR-MQV Powder · LR-MQH · LR-SRH series**





## 05

### Electronics and optics

Phenyl vinyl and phenyl hydrogen resins cure into hard, optically clear networks with a refractive index of up to 1.5420 for LED and optical encapsulants, and are used in electrical insulating varnishes. PMSQ powder diffuses light in PS and PC.

GRADES

**LR-PV101 · LR-PH101 · LR-610**

# HANDLING AND SUPPLY



**Dispersing powders**

Disperse powder grades into the polymer with heat and high-shear mixing, or pre-dissolve them in a compatible solvent such as toluene, xylene, C9–C13 isoparaffins or ethyl acetate before adding them to the formulation.

**Addition-cure systems**

Vinyl and Si–H resins react by platinum-catalyzed hydrosilylation. Balance the vinyl and Si–H content of resin, polymer and crosslinker, and determine the optimum loading by testing in the actual formulation.

**Custom grades**

Vinyl content of LR-MQV Powder and the specifications of the LR-MQV, LR-PV101 and LR-PH101 series can be adjusted on request.

## Packaging

| Product group | Packaging |
|---|---|
| LR-MQ, LR-MQV Liquid | 20 kg boxes, 25 kg pails, 200 kg drums |
| LR-MQ Powder / LR-MQV Powder | 40 kg or 200 kg pails / 40 kg pails |
| LR-MQH, LR-SRH series | 25 kg or 200 kg drums |
| LR-PV101, LR-PH101 | 25 kg pails, 200 kg drums |
| LR-TMS | 25 kg barrels (powder), 40 or 200 kg drums (liquid) |
| LR-610 | 20 kg cartons, 500 kg big bags |

Packaging is given per grade in the TDS; other pack sizes on request.

# SELECTING A GRADE

To recommend a grade, our technical team needs a few details about your application:

### Coatings and electrical insulation

01 Substrate: aluminum, cold-rolled steel, ceramics, glass, plastic or other

02 Main requirements: heat resistance, corrosion protection, hardness, adhesion, electrical insulation

03 Temperature: continuous operating temperature and short-term peak

04 Environment: indoor or outdoor; exposure to acids, alkalis or salt spray

05 Application method: spraying, brushing, roller coating or dipping

06 Curing: air-drying at room temperature or baking (temperature and time)

07 Final form: clear varnish or pigmented coating

08 Reference grade you use today (optional)

09 Requirements on solvents, VOC, RoHS or REACH

### MQ and specialty resins

01 Application: PSA, LSR or HCR, release coating, encapsulant, cosmetic or other

02 Cure system: platinum addition cure, condensation cure or peroxide

03 Target hardness, tack or peel force, and optical requirements such as refractive index

04 Required functional group and content: vinyl, Si–H or none

05 Preferred form: powder, solvent solution or dispersion in silicone fluid

06 Reference grade you use today (optional)

07 Regulatory requirements, for example for cosmetics or food-contact parts

Technical data sheets, safety data sheets and samples are available on request.

# QUALITY MANAGEMENT



### Management system

Quality management is part of Silfluo's overall management framework, which also sets the policies, standards and work processes for environment, health and safety, manufacturing and human resources.

### Quality management system

Silfluo's quality management system is certified to ISO 9001. It is set up and supported by company management so that customers receive reliable products and services that meet their requirements, and it requires compliance with technical specifications, regulations and quality standards.

### Products and service

Product quality is maintained through standardized procedures and process control. Service quality covers every contact with the customer and is managed by the responsible department. The quality requirements for products and services are agreed between Silfluo and each customer.

### Quality statement

Quality is a shared responsibility and a core value for every Silfluo employee. Through teamwork, commitment and continuous improvement, we work to supply products and services that meet or exceed our customers' expectations.

# QUALITY CONTROL

Silfluo uses a QDG (Quality Data Gather) system to collect test data and track quality improvement. The system handles high testing volumes, so that every batch is tested during production.

## Conventional test items

| Test item | Equipment |
|---|---|
| Chloride ion | Ion chromatograph |
| Hydrolyzable chlorine | Automatic titrator |
| Conductivity | Conductivity meter |
| Purity | Gas chromatograph (GC) |
| Moisture | Karl Fischer moisture tester |
| Density | Density meter |
| Refractive index | Abbe refractometer |

## Laboratory equipment



Ion chromatograph



Gas chromatograph



Gas chromatograph



Abbe refractometer



Automatic titrator



Karl Fischer moisture tester



Density meter



Conductivity meter



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