SINOPCC GROUP

DECADES OF MANUFACTURING EXCELLENCE

With over 30 years of experience in silane and silicone manufacturing, we have developed robust capabilities in meeting diverse production needs, from small-scale to large-scale operations.

CUSTOMER-CENTRIC FOCUS

At SiSiB SILICONES, we prioritize our customers' needs by constantly innovating and offering comprehensive raw material solutions. From initial product evaluation and testing to full-scale production and timely delivery, we provide unwavering support and formulation assistance every step of the way.

INNOVATION AND TECHNOLOGICAL EXPERTISE

Innovation drives SiSiB SILICONES, fueled by our commitment to sustainability and backed by our expertise in science, advanced technology, global market reach, and regulatory compliance. We continuously push boundaries to deliver cutting-edge solutions.

SUSTAINABLE AND RELIABLE SUPPLY

We excel in swift developing and scaling up processes, ensuring smooth transitions from concept to execution. Our dedication to sustainability extends to our supply chains, where we leverage proprietary technology, economies of scale, and backward integration to ensure a sustainable and dependable supply for our customers' needs.

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JULY 2025

SiSiB® Materials for RTV Silicone Sealants

Silanes · Silicone Oils · Polymers · Silicas · Catalysts

Sustainable Innovation for a Better Future

SiSiB SILICONES 西斯博有机硅

SiSiB SILICONES 西斯博有机硅

Founded in 1989, SiSiB SILICONES has grown into a recognized leading company in the global silicone industry, specializing in the research, development, and manufacturing of silanes and silicone-based materials. Positioned strategically along the entire silicone value chain, we provide a comprehensive portfolio of high-performance products, including silanes, siloxanes, silicone fluids, silicone rubbers, fumed silicas, silicone polymers, and specialty additives, each tailored to meet the evolving needs of customers worldwide.

To ensure consistent product quality and reliable supply, we adopted a backward integration strategy. By 2015, we achieved full vertical integration, covering every step from silicone monomer production to advanced downstream applications. Today, we operate two upstream production bases and seven downstream manufacturing facilities across China. All sites are equipped with precise monitoring systems and advanced automated equipment, continuously upgraded to maintain efficiency, safety, and alignment with global standards. We are certified by SGS to ISO 9001:2015, reflecting our commitment to international quality benchmarks.

Our team includes 1,800 dedicated professionals, among them more than 100 senior engineers. Their expertise fuels our innovation, strengthens our technical capabilities, and ensures strict quality control throughout every stage of production. This enables us to respond rapidly to shifting market demands while maintaining stable and reliable output.

We are committed to delivering high-quality products on time, helping our customers enhance their competitiveness through economies of scale, streamlined processes, and optimized throughput. If specific customer needs exceed our current capabilities, we are fully prepared to invest in expanding or upgrading our facilities, equipment, or production systems to deliver tailor-made solutions.

Sustainability lies at the heart of our operations. All of our manufacturing sites feature integrated by-product recovery and recycling systems. Built on the concept of a balanced plant, we aim to achieve zero waste and minimal environmental impact. We also continuously optimize our energy use and develop eco-friendly technologies for both new and existing product lines.

With exports to more than 100 countries, our solutions are widely used across industries including adhesives and sealants, agriculture, artificial stone, construction, coatings, pigments, foundries, fiberglass, textiles, personal care, pharmaceuticals, plastics, thermoplastics, polyurethane foams, rubber, tires, and electronics.

We welcome long-term partnerships and collaboration opportunities. Through reliable service, professional expertise, and a forward-thinking approach, we remain dedicated to delivering sustainable, high-performance silicone solutions that meet the expectations of governments, industries, and consumers alike.

Silicone sealants have played a critical role in the global sealants industry for more than half a century, valued for their exceptional durability, weather resistance and long-term performance in demanding environments. Within this broad class, RTV (Room Temperature Vulcanizing) silicone sealants have emerged as one of the most widely adopted technologies due to their ability to cure into elastomeric materials under ambient conditions without additional heat or activation.

RTV silicone sealants are formulated from low-molecular-weight linear silicone polymers functionalized at the chain ends. Once exposed to moisture, these polymers undergo crosslinking reactions and gradually transform from a paste into a flexible, rubber-like elastomer. This moisture-triggered, room-temperature curing process forms the three-dimensional siloxane network responsible for the elasticity, adhesion, thermal stability and aging resistance characteristic of RTV systems.

Modern RTV formulations depend on several essential raw material categories, each contributing a specific set of functions. Silicone polymers define viscosity, rheology and elastic recovery of the cured sealant. Silanes act as crosslinkers, adhesion promoters and curing agents, shaping the cure mechanism and bonding behavior. Reinforcing silicas provide mechanical strength, thixotropy and modulus control. Catalysts regulate cure kinetics to ensure a balanced application window and consistent performance. In addition, silicone oils function as plasticizers to fine-tune flow behavior, reduce modulus, improve workability and enhance long-term flexibility. Together, these components determine the performance, durability and application profile of RTV sealants.

SiSiB® product portfolio offers a complete and integrated suite of high-performance raw materials tailored for one-component RTV silicone sealants. From α,ω-functional silicone polymers and specialized crosslinking silanes to reinforcing silicas, silicone plasticizer oils and precision catalyst systems, SiSiB® enables formulators to create optimized sealant systems with excellent elasticity, adhesion, cure speed, mechanical strength and long-term aging resistance across applications in construction, industrial assembly, transportation and general sealing.

Component	Chemical	Function
Base Polymer	OH Polymers, PF1070 series.	Molecule backbone.
Plasticizer	PDMS Silicone Fluid, MF2010 series.	Adjust extrudability.
Crosslinkers	Acetoxy, Alkoxy and Oximino Silanes.	Crosslinking of the polymeric component.
Fumed Silica	Hydrophobic and Hydrophilic.	Thixotropic reinforcing agents, adjustments of viscosity and mechanical properties.
Adhesion Promoters	Silane Coupling Agent.	Enhance adhesion
Catalyst	OrganoTin, DBTDL and DBTDA.	Cure the network and control the rate of cure.
Non-reinforcing fillers	Ground calcium, Carbonate.	Reduce cost; adjust rheology.
Other additives	Water scavenger. Pigments. Biocides.	Prolong shelf life. Color. Fungus growth resistance.

BASE POLYMER - OH POLYMER

Role of Siloxane Polymers in RTV Systems

The fundamental building block of any RTV silicone sealant is the polymeric siloxane backbone. Silanol-terminated polydimethylsiloxanes serve as the primary base polymers for both one-component moisture-curing RTV silicone sealants and two-component condensation-curing RTV silicone compounds. These polymers are available in a wide range of viscosities, allowing formulators to tailor flow behavior, mechanical properties and final performance according to application requirements.

Hydroxyl-terminated PDMS, such as SiSiB® PF1070, forms the core of most RTV formulations. With viscosities ranging from 750 to 100,000 cSt, SiSiB® PF1070 is suitable for systems containing reinforcing or extending fillers. When combined with condensation-type crosslinkers, including alkoxy, acetoxy, oxime and enoxy silanes in the presence of appropriate catalysts, these polymers cure into flexible and durable silicone elastomers.

Silanol-Terminated Polymers (OH Polymers)

SiSiB® PF1070 is a silanol-terminated polydimethylsiloxane widely used in condensation-curing RTV systems. Its reactive silanol groups undergo moisture-triggered condensation with multifunctional silanes such as alkoxy, acetoxy or oximino silanes, forming crosslinked silicone networks. It is available in viscosities from 750 to 20,000,000 cSt.

SiSiB® PF1070LV features reduced cyclic siloxane content (D4-D6 < 1000 ppm) to meet EU regulatory requirements. SiSiB® PF1070E is an electronic-grade version with ultra-low cyclic content (< 300 ppm), suitable for semiconductor, photovoltaic and other high-purity applications.

SiSiB® PF1078 is a silanol-terminated dimethylsiloxane–diphenylsiloxane copolymer with a viscosity range of 2,000 to 10,000 cP. Its phenyl content (2.5-20.0 mol%) can be adjusted to enhance thermal stability and improve low-temperature flexibility.

SiSiB® PF1079 is a silanol-terminated poly(trifluoropropyl-methyl)siloxane or methyltrifluoropropylsiloxane-dimethylsiloxane copolymer with viscosities between 100 and 100,000 cSt. Customizable trifluoropropyl content provides excellent chemical resistance, fuel/oil resistance and superior low-temperature elasticity.

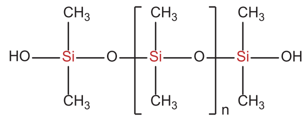
BASE POLYMER - OM POLYMER

Product	Appearance	Viscosity (25°C)	Volatile (%)
SiSiB® PF1070-750	Transparent liquid	750 cSt	Max. 1.5
SiSiB® PF1070-1500	Transparent liquid	1,500 cSt	Max. 1.5
SiSiB® PF1070-2000	Transparent liquid	2,000 cSt	Max. 1.5
SiSiB® PF1070-3500	Transparent liquid	3,500 cSt	Max. 1.5
SiSiB® PF1070-5000	Transparent liquid	5,000 cSt	Max. 1.5
SiSiB® PF1070-10000	Transparent liquid	10,000 cSt	Max. 1.5
SiSiB® PF1070-20000	Transparent liquid	20,000 cSt	Max. 1.5
SiSiB® PF1070-50000	Transparent liquid	50,000 cSt	Max. 1.5
SiSiB® PF1070-80000	Transparent liquid	80,000 cSt	Max. 1.5
SiSiB® PF1070-100K	Transparent liquid	100,000 cSt	Max. 1.5
SiSiB® PF1070-150K	Transparent liquid	150,000 cSt	Max. 1.5
SiSiB® PF1070-300K	Transparent liquid	300,000 cSt	Max. 1.5
SiSiB® PF1070-1000K	Transparent liquid	1,000,000 cSt	Max. 1.5

SiSiB® PF1070 OH Polymer

[CAS 70131-67-8]

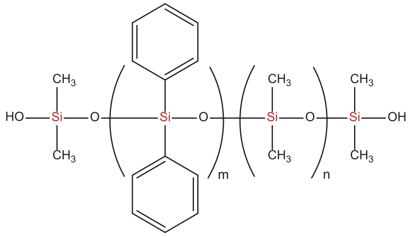
Silanol terminated polydimethylsiloxane



SiSiB® PF1078 OH Polymer

[CAS 68951-93-9]

Silanol-terminated dimethylsiloxane-diphenylsiloxane copolymer

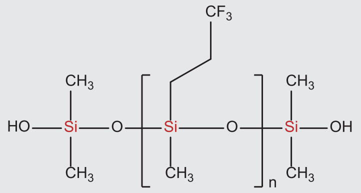


BASE POLYMER - OM POLYMER

SiSiB® PF1079 OH Polymer

[CAS 68607-77-2]

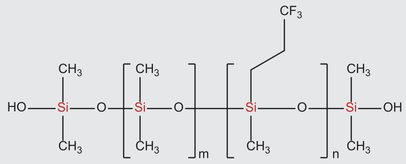
Silanol terminated poly(trifluoropropyl-methyl)siloxane



SiSiB® PF1079C OH Polymer

[CAS 115361-68-7]

Silanol terminated methyltrifluoropropylsiloxane-dimethylsiloxane copolymer



Storage and Processing Challenges of OH Polymers

Hydroxyl-terminated polymers can undergo side reactions during storage or processing. Reactions with organotin or organotitanium catalysts may cause rapid viscosity increase, commonly known as a viscosity peak. Interactions with crosslinkers may release methanol, while catalyst-induced backbone scission can generate mono-alkoxy terminated oligomers, reducing or even preventing curing. Furthermore, silanol groups form hydrogen bonds with filler surface hydroxyls, causing filler structuring and impairing dispersion and processing performance.

OM Polymers: Pre-Endcapped Solutions

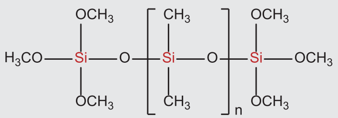
OM polymers such as SiSiB® PF1071 and SiSiB® PF1073 are pre-endcapped with alkoxy groups, eliminating viscosity peak issues and providing excellent storage stability. These polymers simplify production, improve compatibility with fillers and crosslinkers, and ensure more predictable curing behavior.

SiSiB® PF1071 is available in 500, 2,000, 20,000 and 80,000 cSt grades.SiSiB® PF1073 is available in 750, 5,000, 10,000, 20,000, 80,000 and 100,000 cSt grades. Other viscosities are available upon request.

SiSiB® PF1071 OM Polymer

[CAS 142982-20-5]

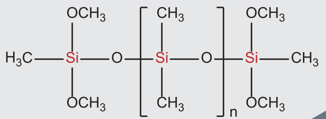
Trimethoxysilyl terminated polydimethylsiloxane



SiSiB® PF1073 OM Polymer

[CAS 68037-58-1]

Dimethoxymethylsilyl terminated polydimethylsiloxane



PLASTICIZER - SILICONE FLUIDS

SiSiB® MF2010 Silicone Fluids - Enhancing Extrudability and Processing

SiSiB® nonreactive silicone oils - such as polydimethylsiloxane (PDMS) fluids - are widely used in RTV silicone sealant formulations as plasticizers. Their primary function is to modify the rheological profile of the uncured paste, improving extrudability and workability without interfering with the curing mechanism. By reducing modulus and adjusting flow behavior, PDMS fluids help create smooth, easy-to-apply sealants with consistent performance.

These silicone fluids are clear, colorless, odorless, and essentially inert, allowing formulators to enhance processing without introducing unwanted side reactions. SiSiB® MF2010 Silicone Fluids exhibit excellent thermal stability and can be used in open systems at temperatures ranging from -40°C to 200°C without degradation, gelling, or viscosity drift. In closed systems, their thermal stability is even higher, enabling long-term reliability under demanding conditions.

Beyond their role in sealant modification, silicone fluids offer high dielectric strength and outstanding electrical insulation properties. Their non-conductive nature, chemical inertness, and wide service temperature range make them suitable not only for RTV sealants but also for applications such as lubricants, heat transfer fluids, bath oils, mold-release agents, and dielectric cooling oils.

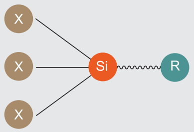
SiSiB® MF2010 series are designed to provide consistent viscosity control, excellent compatibility with silicone polymers, and stable performance throughout the sealant's service life. By incorporating SiSiB® MF2010 PDMS fluids, formulators can achieve optimal balance between processability, long-term flexibility, and structural integrity in one-component RTV silicone sealants.

Product	Viscosity cSt	Flashpoint °C	Freezing Point °C	Density 25°C	Surface Tension mN/m, 25°C	Refractive Index 25°C
MF2010-50	50	>280	-55	0.959	20.7	1.402
MF2010-100	100	>280	-55	0.965	20.9	1.403
MF2010-200	200	>300	-50	0.967	21.0	1.403
MF2010-250	250	>300	-50	0.970	21.1	1.403
MF2010-350	350	>300	-50	0.970	21.1	1.403
MF2010-500	500	>300	-50	0.970	21.1	1.403
MF2010-1000	1000	>300	-50	0.970	21.2	1.403

SILANE CROSSLINKERS

Crosslinkers play a central role in RTV silicone chemistry by enabling siloxane network formation. The organofunctional group (R-group) of a silane can bond to the polymer backbone, while the moisture-hydrolysable alkoxy groups (X-groups) convert into reactive silanols upon exposure to residual moisture. These silanols then condense with each other, releasing small-molecule by-products and forming durable Si-O-Si linkages. The resulting three-dimensional siloxane network provides excellent resistance to weathering, UV radiation, heat, chemicals and moisture.

In RTV silicone systems, crosslinkers are generally represented as $R\text{-}Si\text{-}X_3$ for one-component systems and $Si\text{-}X_4$ for two-component systems.



R represents an organic functional group such as methyl, ethyl, vinyl or phenyl.

X represents a moisture-hydrolysable group such as acetoxy, alkoxy or oxime.

Repeated hydrolysis and reaction of resultant polymer end groups lead to full cure with elimination of HX as a by-product of the condensation reaction.

The acetoxy cure system is the most common RTV system, and it has been used for the longest period of time. However, the by-product is acetic acid, and this could be corrosive to metal substrates or undesirable because of the odor. The alkoxy cure systems produce a by-product that is noncorrosive and has an unobjectionable odor. The acetoxy, alkoxy, and oxime chemistries are all prevalent today. The characteristic of these cure systems are summarized in table below:

Characteristics of Various RTV silicone Cure Systems

Acetoxy systems offer a relatively fast cure rate and short tack-free time, along with good adhesion. However, the by-product is acetic acid, which may cause corrosion on some metal substrates and has a noticeable odor.

Alkoxy systems provide longer tack-free and cure times compared with acetoxy systems. Their by-products are non-corrosive and have a mild, unobjectionable odor. Adhesion is generally lower than that of acetoxy systems but suitable for a wide range of construction and interior applications.

Oxime systems exhibit low corrosion behavior, making them suitable for sensitive substrates. However, they usually have longer tack-free and overall cure times than both acetoxy and alkoxy systems.

CURE MECHANISM

One-Component RTV Crosslinking

In one-component RTV systems, the crosslinker is blended directly with the filled polymer. The crosslinker reacts immediately, forming moisture-reactive sites as shown in Figure A. The material is then packaged under strictly moisture-free conditions to maintain shelf life. Upon application, ambient moisture triggers hydrolysis and condensation, forming a tough, elastic crosslinked network.

Two-Component RTV Crosslinking

Two-component RTV systems cure through similar mechanisms. The crosslinker and catalyst are typically packaged together as Part A, while the polymer is supplied as Part B. Upon mixing, hydrolysis begins, followed by condensation. Cure rate can be accelerated by mild heating. As with one-component systems, low moisture exposure during storage is essential to maintain stability.

Catalyst Interaction

The rate of crosslinking depends on the dosage and chemical nature of the catalyst. Low levels of tin-based catalysts such as stannous octoate or dibutyltin dilaurate are commonly used. Catalyzed systems are especially advantageous in outdoor applications where rapid skin-over prevents dust contamination and early rain exposure.

SiSiB Expertise in Crosslinkers

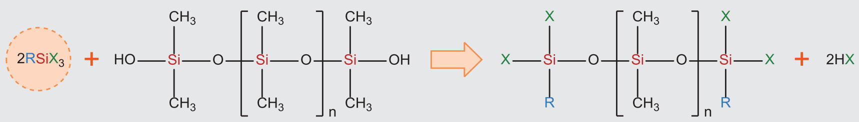
SiSiB SILICONES has been developing and producing crosslinkers and silane coupling agents for the sealant industry for more than twenty-five years. Through continuous innovation, SiSiB™ supplies a comprehensive range of high-performance crosslinkers that deliver reliable curing, excellent storage stability and strong mechanical properties in RTV silicone sealants worldwide.

Following the EU REACH decision in November 2023 to classify MEKO (Methyl Ethyl Ketoxime) as a Category 1B carcinogen, the use of MEKO-releasing crosslinkers in sealant formulations has effectively been prohibited within the European market. In response to these regulatory changes, SiSiB has developed a new generation of MEKO-free oxime crosslinkers. These next-generation crosslinkers are specifically engineered to help manufacturers meet EU compliance requirements while maintaining full compatibility with standard RTV formulations. They enable customers - especially those supplying the European market - to transition smoothly to fully compliant, MEKO-free sealant technologies without compromising performance, durability or processing behavior.

Cure Mechanism

A

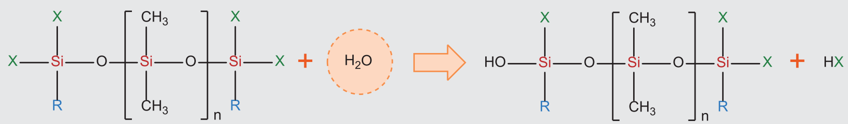
Figure A. Reaction of crosslinker with polymer chain ends.



The crosslinker reacts immediately with silanol-terminated polymer ends, generating two hydrolysable sites per chain end.

B

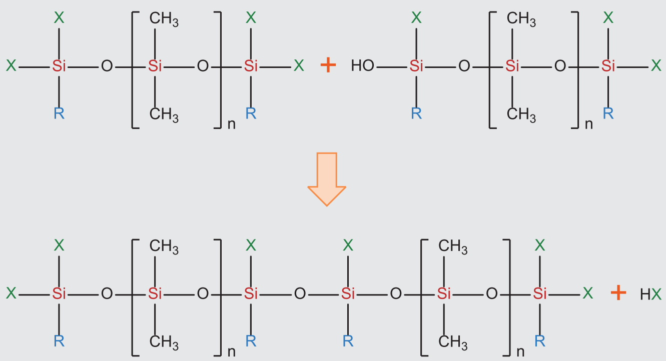
Figure B. Hydrolysis of crosslinker-modified polymer ends



Moisture activates the hydrolysable groups, forming silanol functional ends.

C

Figure C. Condensation between adjacent polymer chains



Silanol groups condense with each other, forming Si-O-Si crosslinks and releasing HX as a by-product.

SISIB SILICONES
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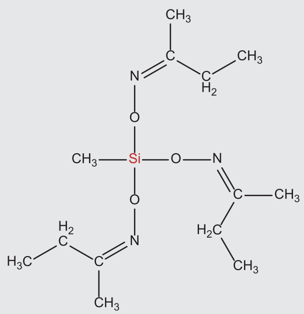
SILANE CROSSLINKERS

Acetoxy Silane Crosslinker	Oximine Silane Crosslinker	Alkoxy Silane Crosslinker
SiSiB® PC7930 MTA	SiSiB® PC7130 MOS	SiSiB® PC5131 MTMS
SiSiB® PC7950 ETA	SiSiB® PC7220 DMOS	SiSiB® PC5132 MTES
SiSiB® PC7960 VTA	SiSiB® PC7500 VOS	SiSiB® PC5420 TEOS
SiSiB® PC7970 PTA	SiSiB® PC7400 TOS	SiSiB® PC5424 TEOS-40
SiSiB® PM2080	SiSiB® PC7600 POS	SiSiB® PC5430 TPOS
SiSiB® PM3070	SiSiB® PC7133 Methyl MIBKO Silane	SiSiB® PC6110 VTMO
SiSiB® PM7030	SiSiB® PC7530 Vinyl MIBKO Silane	SiSiB® PC6151 Enoxy
SiSiB® EM7030	SiSiB® PC7410 Tetra MIBKO silane	SiSiB® PC8151 Enoxy
	SiSiB® PC7131 Methyl Acetoxime Silane	
	SiSiB® PC7531 Vinyl Acetoxime Silane	
	SiSiB® PC7160 Methyl 2-PO Silane	
	SiSiB® PC7560 Vinyl 2-PO Silane	
	SiSiB® MT9010 / MT8515 / MT8020	
	SiSiB® MV6733 / MV8020	
	SiSiB® VT5545 / VT6535 / VT8020 / VT8515	

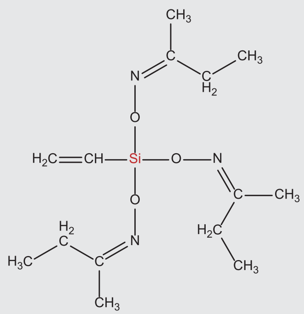
SiSiB® PC7130 [CAS 22984-54-9]

Methyltris(methylethylketoxime)silane(MOS)



SiSiB® PC7500 [CAS 2224-33-1]

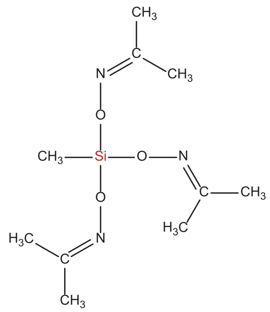
Vinyltris(methylethylketoxime)silane (VOS)



SILANE CROSSLINKERS

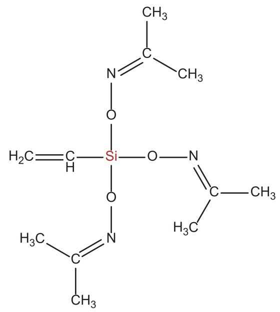
SiSiB® PC7131 [CAS 2594-75-4]

Methyltris(acetoxime)silane



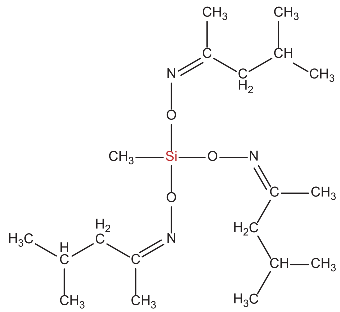
SiSiB® PC7531

Vinyltris(acetoxime)silane



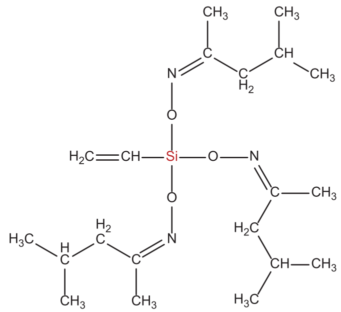
SiSiB® PC7133 [CAS 37859-57-7]

Methyltris(methylisobutylketoxime)silane



SiSiB® PC7530 [CAS 156145-64-1]

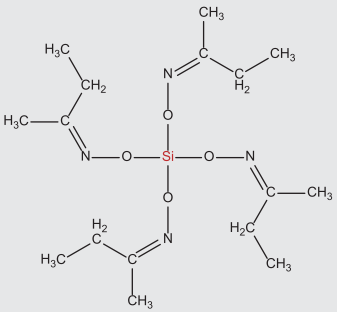
Vinyltris(methylisobutylketoxime)silane



SILANE CROSSLINKERS

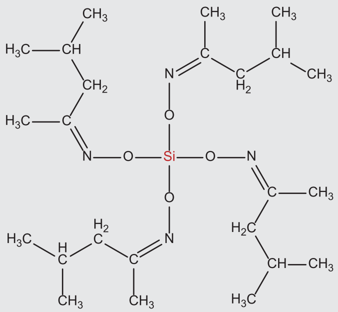
SiSiB® PC7400 [CAS 34206-40-1]

Tetra(methylethylketoxime)silane in toluene (TOS in toluene)



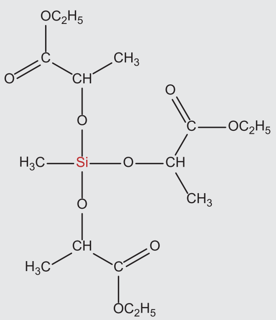
SiSiB® PC7410 [CAS 156145-62-9]

Tetra(methylisobutylketoxime)silane



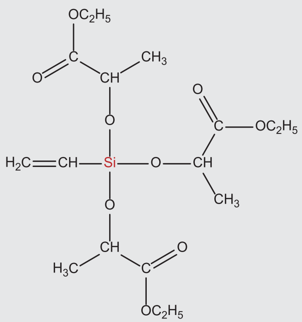
SiSiB® PC7150 [CAS 17898-75-8]

Methyltris(ethyl lactato)silane



SiSiB® PC7550 [CAS 1124196-01-5]

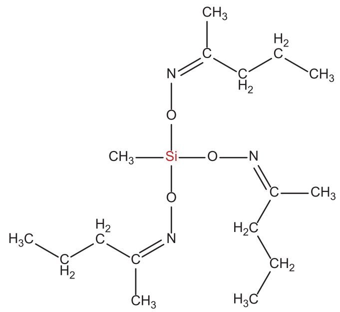
Vinyltris(ethyl lactato)silane



SILANE CROSSLINKERS

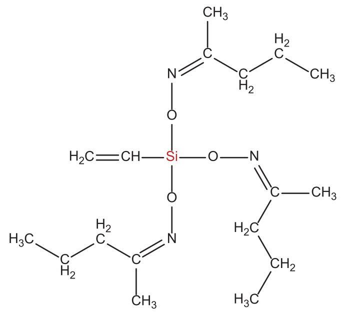
SiSiB® PC7160 [CAS 37859-55-5]

Methyltris(2-pentanoneoxime)silane



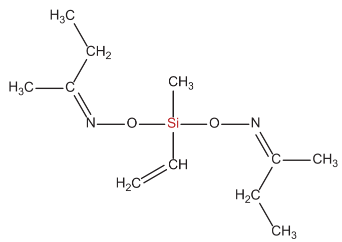
SiSiB® PC7560 [CAS 58190-62-8]

Vinyltris(2-pentanoneoxime)silane



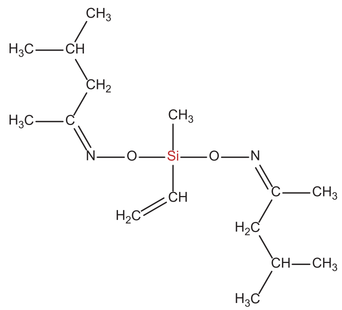
SiSiB® PC7510 [CAS 72721-10-9]

Methylvinyldi (methylethylketoxime)silane



SiSiB® PC7513 [CAS 156145-66-3]

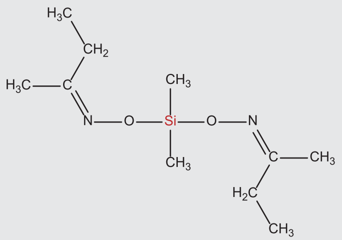
Methylvinyldi (methylisobutylketoxime)silane



SILANE CROSSLINKERS

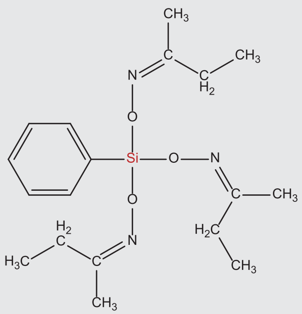
SiSiB® PC7220 [CAS 37843-26-8]

Dimethyldi(methylethylketoxime)silane



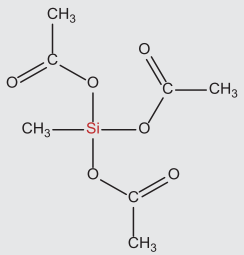
SiSiB® PC7600 [CAS 34036-80-1]

Phenyltris(methylethylketoxime)silane (POS)



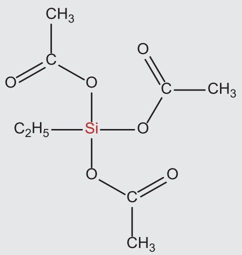
SiSiB® PC7930 [CAS 4253-34-3]

Methyltriacetoxysilane (MTA)



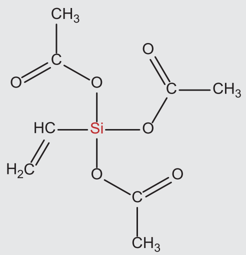
SiSiB® PC7950 [CAS 17689-77-9]

Ethyltriacetoxysilane (ETA)



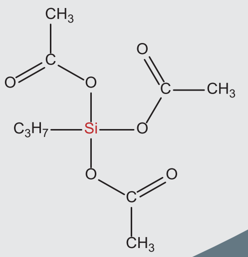
SiSiB® PC7960 [CAS 4130-08-9]

Vinyltriacetoxysilane (VTA)



SiSiB® PC7970 [CAS 17865-07-5]

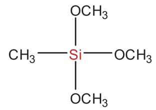
Propyltriacetoxysilane (PTA)



SILANE CROSSLINKERS

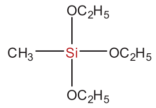
SiSiB® PC5131 [CAS 1185-55-3]

Methyltrimethoxysilane



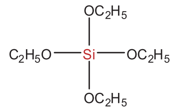
SiSiB® PC5132 [CAS 2031-67-6]

Methyltriethoxysilane



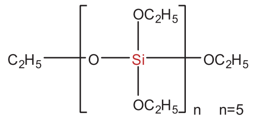
SiSiB® PC5420 [CAS 78-10-4]

Tetraethoxysilane



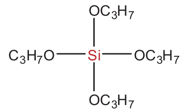
SiSiB® PC5424 [CAS 11099-06-2]

Ethyl polysilicate 40



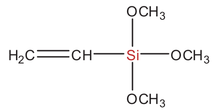
SiSiB® PC5430 [CAS 682-01-9]

Tetrapropoxysilane



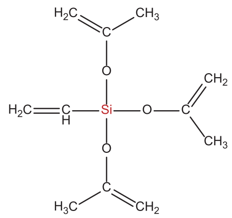
SiSiB® PC6110 [CAS 2768-02-7]

Vinyltrimethoxysilane



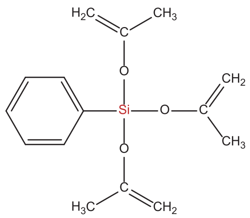
SiSiB® PC6151 [CAS 15332-99-7]

Vinyltris(isopropenyloxy)silane



SiSiB® PC8151 [CAS 52301-18-5]

Phenyltris(isopropenyloxy)silane



FILLER - FUMED SILICA

Fumed silica is a critical component in RTV silicone sealant formulations, serving as a thixotropic reinforcing agent that enhances viscosity, mechanical strength, and overall rheological stability. By introducing a three-dimensional silica network within the polymer matrix, fumed silica helps control flow behavior, prevents slump, and contributes significantly to the elasticity, tensile properties, and long-term durability of the cured sealant.

RTV silicone systems filled with fumed silica can be easily pigmented to achieve virtually any desired color - a key requirement since cured silicone elastomers generally cannot be painted. Common pigments include titanium dioxide for white formulations, carbon black for black sealants, and a wide array of metal oxides, chromates, sulfates, and inorganic pigments for customized coloration. This flexibility allows formulators to meet aesthetic, coding, and application-specific needs across construction, industrial, and consumer applications.

SiSiB® offers both hydrophilic and hydrophobic grades of fumed silica, enabling formulators to precisely tailor reinforcement, thixotropy, compatibility, and moisture sensitivity. Hydrophilic grades provide strong reinforcement and are well suited for many general-purpose RTV systems, while hydrophobic grades offer improved dispersion, enhanced stability in moisture-sensitive systems, and superior performance in one-component RTV formulations. Together, these products give formulators full control over processing behavior and final mechanical performance.

Product	Type	Treated by	Specific surface area (BET) m2/g
SiSiB® FS0150	Hydrophilic	Untreated	150
SiSiB® FS0200	Hydrophilic	Untreated	200
SiSiB® FS2110	Hydrophobic	PDMS	110 (After treatment)
SiSiB® FS5115	Hydrophobic	DDS	115 (After treatment)
SiSiB® FS5170	Hydrophobic	DDS	170 (After treatment)
SiSiB® FS9160	Hydrophobic	HMDS	160 (After treatment)
SiSiB® FS9260	Hydrophobic	HMDS	260 (After treatment)

ADHESION PROMOTER - SILANES

Silane coupling agents play an essential role in RTV silicone sealant formulations as highly effective adhesion promoters. As bifunctional organosilicon compounds, they contain both inorganic-reactive groups such as alkoxy or silanol groups, and organic-functional groups. This dual reactivity enables them to create chemical bonds or strong interfacial interactions between the silicone sealant and a wide variety of substrates including glass, metals, ceramics, plastics and coated surfaces.

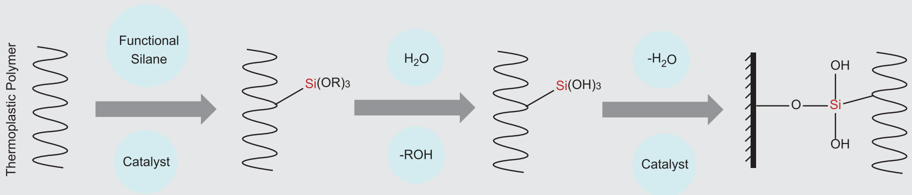
When incorporated into RTV-1 silicone sealants, silane coupling agents enhance adhesion by forming durable siloxane linkages with the silicone polymer while at the same time reacting with the substrate surface. This creates a strong chemical bridge that improves long-term adhesion strength, resistance to movement and peeling, and durability in harsh environmental conditions.

Silane adhesion promoters can be added directly during the manufacturing process of RTV-1 silicone sealants. By selecting appropriate silane types and optimizing their dosage, formulators can fine-tune adhesion performance for applications such as construction joints, glazing, industrial assembly and multi-substrate sealing.

SiSiB® offers a broad portfolio of silane coupling agents with different functional groups including amino, epoxy, methacryloxy and alkyl-functional silanes. These products allow precise tailoring of adhesion properties for specific substrates and performance requirements. SiSiB® also provides environmentally friendly and user-convenient silane oligomers with reduced volatility, improved storage stability and safer handling characteristics. These advanced silane technologies give formulators greater flexibility and reliability when designing high-performance RTV silicone sealant systems.

Product	Chemical Name	CAS No.
SiSiB® PC1100	3-Aminopropyltriethoxsilane	919-30-2
SiSiB® PC1110	3-Aminopropyltrimethoxsilane	13822-56-5
SiSiB® PC1200	N-2-(Aminoethyl)-3-Aminopropyltrimethoxysilane	1760-24-3
SiSiB® PC1300	Diethylenetriaminopropyltrimethoxysilane	35141-30-1
SiSiB® PC3100	3-Glycidoxypropyltrimethoxysilane	2530-83-8
SiSiB® AP1280	Oligomeric diamino-silane	N.A.
SiSiB® PC7910	Di-tertbutoxy-diacetoxysilane	13170-23-5

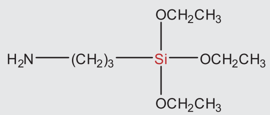
SILANE ADHESION PROMOTERS



Coupled Polymer / Adhesion Promotion

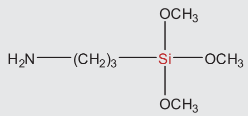
SiSiB® PC1100 [CAS 919-30-2]

3-Aminopropyltriethoxysilane



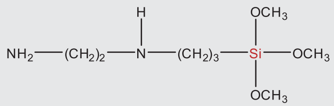
SiSiB® PC1110 [CAS 13822-56-5]

3-Aminopropyltrimethoxysilane



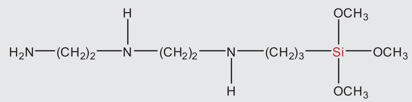
SiSiB® PC1200 [CAS 1760-24-3]

N-(2-Aminoethyl)-3-Aminopropyltrimethoxysilane



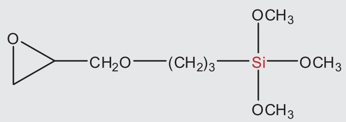
SiSiB® PC1300 [CAS 35141-30-1]

N-(3-trimethoxysilylpropyl)diethylenetriamine



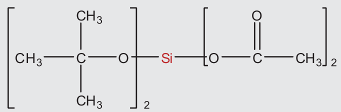
SiSiB® PC3100 [CAS 2530-83-8]

3-Glycidoxypropyltrimethoxysilane



SiSiB® PC7910 [CAS 13170-23-5]

Di-tertbutoxy-diacetoxysilane



TIN CATALYSTS

PowerCat™ DBTDL and PowerCat™ DBTDA are efficient catalysts used to initiate and control the curing process in RTV silicone systems. They promote the formation of the crosslinked silicone network and allow formulators to precisely adjust cure rate, skin-over time and overall processing behavior.

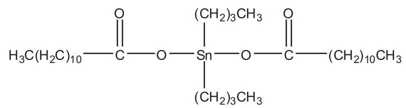
In both one-component and two-component RTV silicone systems, crosslinking reactions at room temperature can be significantly accelerated by incorporating catalysts at low concentrations. These catalysts facilitate the condensation reaction between silanol-terminated polymers and multifunctional crosslinkers, ensuring reliable curing under a wide range of environmental conditions.

The most commonly used catalysts in condensation-cure RTV systems are tin-based compounds such as stannous octoate and dibutyltin dilaurate (DBTDL). Catalyst performance is strongly dependent on both the chemical structure of the catalyst and its dosage. Higher levels generally accelerate curing, while lower levels provide longer open time and slower skin formation.

Catalyzed RTV systems offer particular advantages where fast skin formation is needed. A quick-drying surface helps reduce dust pickup, improves resistance to early rain exposure and enhances handling performance in outdoor environments where conditions cannot be fully controlled. PowerCat™ catalysts deliver consistent, predictable reactivity and provide balanced processing properties for high-performance RTV silicone sealants.

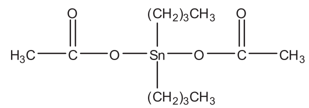
PowerCat™ DBTDL [CAS 77-58-7]

Dibutyltin Dilaurate



PowerCat™ DBTDA [CAS 1067-33-0]

Dibutyltin Diacetate



GUIDE FORMULATION

General Purpose Acetoxy Silicone Sealant

Product	Component	Dosage
Base Polymer	SiSiB® PF1070 OH Polymer 80,000cSt	60-80%
Plasticizer	SiSiB® MF2010 Silicone Fluid 1,000cSt	10-20%
Crosslinker	SiSiB® PC7930 MTAS /PC7970 PTAS	5-10%
Catalyst	PowerCat DBTDL Dibutyltindilaurate	0.2-1%
Filler	SiSiB® FS0150 Fumed Silica	10%
Adhesion Promoter	SiSiB® PC7910 BDAC	

All Weather Purpose Neutral Silicone Sealant

Product	Component	Dosage
Base Polymer	SiSiB® PF1070, Silanol Polymer 80,000 cSt	30-40%
Plasticizer	SiSiB® MF2010, Silicone Fluid 100 cSt	5-10%
Filler	Third party coated calcium carbonate	40-50%
Crosslinker	SiSiB® PC7130 MOS, PC7500 VOS	3-4%
Catalyst	PowerCat DBTDL, Dibutyltindilaurate	0.2-1.0%
Adhesion Promoter	SiSiB® PC1100, PC1110, PC1200 or AP1280	

GUIDE FORMUALTION

Formulation Guidance for Different Modulus Levels

High Modulus

Achieve high modulus by using low-viscosity silanol polymers, high levels of fumed silica or treated fumed silica, and crosslinkers with higher functionality. This combination increases crosslink density and enhances mechanical strength.

Medium Modulus

For medium modulus systems, use medium- to high-viscosity silanol polymers, medium to high levels of silica, and appropriate fillers such as calcium carbonate together with silicone plasticizers to balance strength and flexibility.

Low Modulus

Low modulus formulations require high-viscosity silanol polymers. In these systems, the polymer chain extension effect dominates and reduces crosslink density. Use zero to low silica levels, high levels of calcium carbonate, and silicone plasticizers to provide softness, flexibility and improved movement capability.