Consumer Solutions

DOWSIL™ Silicone Sealants and Foams for Industrial, Appliance and Maintenance

Selection Guide





Solutions for Industrial, Appliance and Maintenance

DOWSIL™ Silicone Sealants

Silicon-based sealants from Dow last longer and are more versatile than most organic polymer sealants. They are durable RTV sealants; cure at room temperature to a tough, rubbery solid with exceptional performance characteristics; and meet a wide variety of your industrial bonding and sealing needs.

Benefits of DOWSIL™ silicone sealants include:

Stability over a wide temperature range

When properly cured, most of our products can be used at temperatures ranging from -70 to 350°F/-56 to 177°C (400°F/204°C intermittent), with still others capable of higher thermal stability up to and exceeding 500°F/260°C (600°F/315°C intermittent).

Weather resistance

High resistance to ultraviolet (UV) rays, radiation and weather prevents our products from hardening, cracking, crumbling, drying and becoming brittle.

Chemical stability

Our sealants do not readily degrade, even under long-term exposure to many chemicals and atmospheric pollutants.

Good bond strength

Our products provide good adhesion to a wide variety of industrial materials, including glass, ceramics and wood masonry; painted surfaces; and many metals and plastics.

Electrical properties

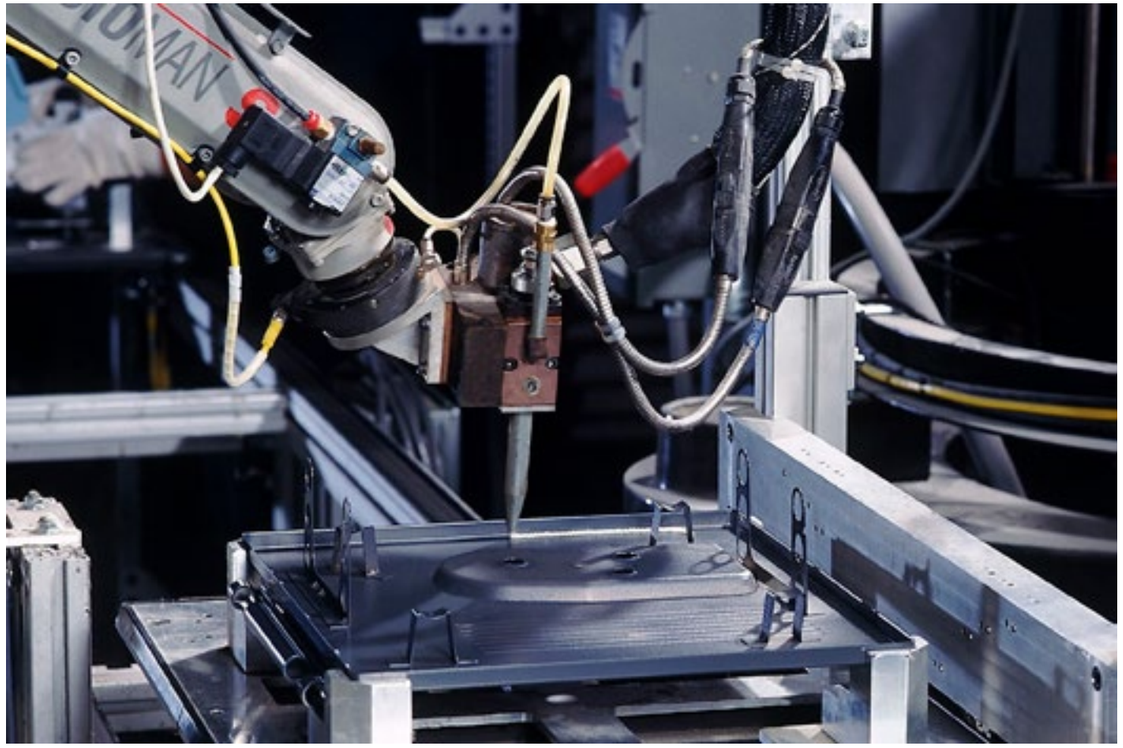
Designed for a variety of applications, our products can be used in various electrical and electronic applications, including devices that are thermally cycled over a wide temperature range.

Low flammability

In fire conditions, silicone adhesives/sealants are reluctant to burn. Many products comply with UL flammability standards.

When you specify an assembly and maintenance product from Dow, you receive a solution backed by the world leader in silicone technology with more than 70 years of expertise and innovations.

DOWSIL™ Silicone Sealants and Foams for Industrial, Appliance and Maintenance



Why Silicones?

For application versatility, durability, aesthetics and value, silicones outperform organics. Silicone sealants from Dow are unrivaled, delivering:

- Protection that typically lasts three times longer than organic materials in the same applications, thus avoiding premature and costly renovations
- Proven performance with successful track records in a range of diverse applications
- Outstanding life-cycle value
- All-weather application and performance, with resistance to UV exposure, ozone, rain, snow and extreme temperatures
- More durability than organic-based materials
- Continued flexibility and adhesion, even while being stretched or compressed
- Resistance to cracking, splits or tears without hardening or fading
- Easy application over a wide temperature range

Organics are prone to chemical reversion, a phenomenon in which organic polyurethane loses its cured properties and reverts to a substance with the softness of chewing gum. The differences between silicones and organics are the difference between long-term value and premature failure. Silicones prevail.

Which Silicone?

Silicone sealants from Dow are offered in a wide range of formulation options, including:

- **RTV (room-temperature-vulcanizing) sealants**
  These silicone polymers work with a condensation reaction in humidity at typical room conditions, but the cure can be accelerated by increasing temperature and humidity. RTV sealants are easy to install, and they offer relatively low cost and good adhesion.
- **Heat cure sealants**
  Delivering much shorter cure times than RTV sealants, these materials can be automatically dispensed to meet industrial equipment assembly requirements.
- **Hot-melt silicone sealants**
  Ideal for automated applications in the manufacturing of various components, these reactive hot-melt materials provide instant green strength, which can increase productivity, improve quality and reduce costs in industrial assembly applications.
- **One-part materials**
  Containing all the ingredients needed to produce a cured material, these sealants use external factors – such as moisture in the air, heat or the presence of UV light – to initiate, speed or complete the curing process. One-part sealant formulations are easy to use and typically have a low- or room-temperature cure, but moisture-curing materials may take 24 hours or more to fully cure.
- **Two-part materials**
  With the reactive ingredients separated to prevent premature initiation of the cure process, these materials often use the addition of heat to facilitate or accelerate cure. Two-part formulations typically offer longer shelf life, high-speed cure, and the ability to carefully control working/

open time and cure time by manipulating the formulation, but they require mixing and may involve more sophisticated processes and application expertise.

- **Silicone foams**
  Ideal as compression gaskets or as “environmental seals” to protect against ambient air, splashed water, dust and moisture, these materials are a cost-effective sealing solution compared to preformed gaskets and foam tapes for use sealing high-tolerance gaps. Applied using automated robotic dispensing, these materials have a fast room-temperature or low-temperature cure.

Sealant Chemistry

Silicone sealants typically consist of an inorganic siloxane (Si-O-Si-O-Si) polymer and appropriate filler, crosslinker, catalyst, adhesion promoter, pigment and plasticizer.

To meet specific needs, silicone sealants are offered in a variety of chemistries and cure types, each with their own benefits. The following tables will assist you in selecting the right material to help meet your performance requirements.

DOWSIL™ Silicone Sealants and Foams for Industrial, Appliance and Maintenance

TABLE I: Sealant Chemistries

Chemistry	Surface Cure	Green Strength	Primerless Adhesion	Shelf Life	Clear/ Translucent	Features	Limitations
Acid Cure							
Acetoxy (One-Part)	•••	•	•	•••	••	• Competitively priced versus organics • Fast cure • No-catalyst versions available • Good shelf life • Clear • Adhesion durability	• Acidic; potentially corrosive to metals • Strong odor
Neutral Cure							
Alkoxy (One-Part)	•	•	••	••	LA[1]	• Neutral cure • Robust adhesion • Economical; chalk filled • Low VOC	• Stability of silica system not robust, so achieving clarity is difficult • Slower cure speed • 12-month shelf life
Oxime (One-Part)	••	••	•	•	••	• Fast cure • Low-catalyst options possible • Good silica versions with clear/ translucent offerings	• High-temperature (104°F/40°C) storage causes discoloration • Strong odor • High VOC, typically due to large leaving group
Alkoxy (Two-Part)	••	•••	•	•	NA	• Fast cure/green strength; parts can be moved in under 4 hours • Total VOC low when mixed • Tunable cure profile based on mix ratio • Adhesion to many substrates	• Dispensing equipment and maintenance • Settling of components can be an issue • Catalyst is flammable
Hot Melt (One-Part)	••	•••	•••	••	•••	• Instant green strength for immediate hold • Instant assembly – no “hold time” requirement • Worker friendly – low odor, nonhazardous • Long pot life and long open time • Proven neutral-cure 100% silicone chemistry • Aggressive adhesion to a variety of substrates	• Not intended for use when in total confinement (atmospheric moisture required for cure) • Not intended for continuous water immersion • Not intended for use on surfaces that might bleed oils, plasticizers or solvents
Platinum (Two-Part) “Silicone Foams”	•	–	–	•	NA	• Fast-curing products available in heat cure and room temperature cure options • Ideal choice for compression gaskets • Provides environmental sealing versus elements • Low sealing force/modulus • Ideal for sealing enclosures requiring serviceability • Allows for flexibility in seal and bead design	• Not optimized for fluid sealing • Does not offer high adhesion without a primer or surface treatment • Cure inhibition (“poisoning” of platinum catalyst)

NA = Not available; LA = Limited availability; – = Poor; • = Good; •• = Better; ••• = Best
[1]DOWSIL™ 3145 RTV Mil-A-46146 Adhesive/Sealant is available in clear translucent.

DOWSIL™ Silicone Sealants and Foams for Industrial, Appliance and Maintenance

TABLE II. Acetoxy Sealants

	Acetoxy Sealants					Acetoxy Sealants			High-Temperature Acetoxy Sealants	
	DOWSIL™ 700 Industrial Grade Silicone Sealant	DOWSIL™ 730 FS Solvent Resistant Sealant	DOWSIL™ 732 Multi-Purpose Sealant	DOWSIL™ 733 Glass & Metal Sealant		DOWSIL™ 734 Flowable Sealant	DOWSIL™ 786 Silicone Sealant	XIAMETER™ CTG-1890 Protective Coating	DOWSIL™ 736 Heat Resistant Sealant	DOWSIL™ Q3-1566 Heat Resistant Adhesive/Sealant
Special Features	Resistant to weathering; withstands temperature extremes	Solvent-resistant	Multipurpose; FDA; NSF	Good adhesion		Flowable; self-leveling	Mildew-resistant, as it contains antimicrobial	Excellent moisture protection and resistance to sand, dust and dirt particles; easy-to-apply, thin coating that will not run or drip when applied to vertical or overhead surfaces	High-temperature-resistant	High-temperature-resistant
Primary Uses	General industrial sealing and adhesive applications	Bonding, sealing and caulking where resistance to fuels, oils and solvents is required	General-purpose bonding and sealing; making formed-in-place gaskets	Bonding and sealing		To fill voids, cracks and crevices; conformal coating for connections and battery terminals	Interior sealing applications exposed to high moisture	General-purpose coating for protecting motors and electrical equipment; maintenance coating	Sealing and bonding applications exposed to temperatures as high as 600°F (315°C)	Sealing and bonding applications exposed to temperatures as high as 662°F (350°C)
Applications[1]	Adhering auto trim, appliance trim and nameplates; formed-in-place gaskets for compressors, gearboxes and pumps; bonding appliance parts and signs; caulking doors and windows; sealing out moisture	Assembling and repairing fuel lines and tanks; bonding components exposed to fuels, oils and solvents; making formed-in-place gaskets for chemical compressors, fluid-filled distributors and transformers; repairing rubber linings exposed to corrosive conditions; sealing pipe joints on lines carrying corrosive chemicals	Sealing flashing, vents, flues, gutters, marine cabins and windows, and electrical boxes; caulking joints in sheet metal stacks and ductwork; bonding appliance parts, signs and sign letters; adhering auto trim, appliance trim and nameplates; making formed-in-place gaskets for compressors, gearboxes and pumps	Bonding and sealing appliances, heavy equipment, marine equipment and recreational vehicles		Coating mechanical devices; making formed-in-place gaskets for compressors, gearboxes and pumps; potting electrical terminals; sealing ammunition fuses, trailers and truck cabs	Sealing tubs, sinks, plumbing fixtures and interior walls	Coating motor windings, bus bars, splines, connectors, transformers, insulators, trailers, truck cabs and wooden pole tops	Sealing fired heaters, flanged pipe joints, access doors, moving oven belts, industrial ovens and boilers, plywood drying ovens, bag filters on smokestacks, and flues on gas appliances; bonding appliance parts and electrical and electronic equipment; caulking joints in sheet metal stacks and ductwork	Can be used in ovens, cookers and other heating equipment; automotive oil and other coolant sealing applications
Temperature Range[2], °F/°C, continuous (intermittent)	-70 to 350 (400)/-57 to 177 (204)						-70 to 350 (400)/-57 to 177 (204)		-85 to 500 (600)/-65 to 260 (315)	-58 to 527 (662)/-50 to 275 (350)
Skin-Over Time, min	13	5	10	10		7	5	15	10	5
Tack-Free Time, min	25	25	20	15		13	20	25	17	18
Extrustion Rate, g/min	350	250	350	350		650	350	–	390	270
Durometer, Shore A	20	40	25	25		27	25	21	26	43
Tensile, PSI	225	300	325	335		222	325	–	350	522
Elongation	577	200	600	500		315	600	–	600	340
Specific Gravity	1.02	1.4	1.04	1.03		1.03	1.04	1.03	1.04	1.06
Listings/Specs	FDA 21[3]; NSF 51; UL 94 HB	–	FDA 21[3], NSF 51, NSF 61, UL 94 HB, MIL spec	NSF 51, UL 94 HB, FDA		FDA 21[3], NSF 51, UL 94 HB, MIL spec	FDA 21[4], NSF 51	FDA 21[3]	FDA 21[3], NSF 51, UL 94 HB, MIL spec	–
Color	Aluminum, clear translucent, white, black	White	Aluminum, black, clear translucent, white	Aluminum, black, clear translucent, white		Clear translucent, white	Clear translucent, white	Gray	Red	Black
Sealant Type for Fluid Resistance Table	MQ	FVMQ	MQ	MQ		MQ	MQ	MQ	MQ	MQ
Primerless Adhesion										
Acrylic	NR	NR	NR	NR		NR	NR	Not Tested	NR	Not Tested
Acrylonitrile Butadiene Styrene (ABS)	NR	NR	••	NR		NR	NR	Not Tested	••	Not Tested
Low Density Polyethylene (LDPE)	NR	NR	NR	NR		NR	NR	Not Tested	NR	Not Tested
Nylon 6/6	•	NR	••	••		•	•	Not Tested	••	Not Tested
Polycarbonate	NR	•	NR	•		•	NR	Not Tested	NR	Not Tested
Polypropylene (PP)	NR	NR	NR	NR		NR	NR	Not Tested	NR	Not Tested
Glass	•	•	••	••		•	••	Not Tested	••	Not Tested
Aluminum, Mill Finish	NR	NR	NR	NR		NR	NR	Not Tested	•	Not Tested
Copper	•	•	•	•		•	NR	Not Tested	••	Not Tested
Steel, Galvanized	NR	NR	NR	•		NR	NR	Not Tested	NR	Not Tested
Steel, Low Carbon	NR	NR	NR	NR		NR	NR	Not Tested	NR	Not Tested
Steel, Stainless	NR	NR	NR	NR		NR	NR	Not Tested	NR	Not Tested

NR = Not recommended; • = Limited; •• = Fair; ••• = Good; •••• = Excellent

[1]Most paints will not adhere to sealant; not for underwater structural or adhesive applications; requires atmospheric moisture to cure. May stress-crack some plastics; test before use.
[2]Estimated service temperatures based on product formulation and laboratory testing. Actual service temperature range is dependent on other factors, including the specific application environment.
[3]Meets FDA CFR 21.177.2600.
[4]Meets FDA CFR 21.177.2600 and FDA CFR 21.175.105.

DOWSIL™ Silicone Sealants and Foams for Industrial, Appliance and Maintenance

TABLE III. Alkoxy (Neutral-Cure) Sealants

	DOWSIL™ 739 Plastic Adhesive	DOWSIL™ 748 Non-corrosive Sealant	DOWSIL™ 832 Multi-Surface Adhesive/Sealant		DOWSIL™ 838 Silicone Adhesive/Sealant	DOWSIL™ 3145 RTV Mil-A-46146 Adhesive/Sealant	DOWSIL™ 7091 Adhesive Sealant
Special Features	Plastic adhesive	FDA- and NSF-approved	Excellent adhesion		Nonflowing; high elongation for added stress-relief; UL 94 HB; faster in-line processing with optional heat acceleration; added reliability can result from lower cured stress	Nonflowing; high tensile/tear strength and elongation; faster in-line processing with optional heat acceleration; can be considered for uses with Mil Spec requirements	Non-sag; paste consistency; easy to apply; cures to a tough, flexible rubber; excellent adhesion to many substrates
Primary Uses	Adhering, bonding and sealing plastic and metal; making formed-in-place gaskets	Electrical sealing applications; food-processing and transportation applications	Bonding, sealing and assembly where a noncorrosive sealant is required		General-purpose adhesive applications using automated or manual needle dispensing systems	Sealing and assembly in applications requiring Mil Spec standards	Applications that demand a strong but flexible bond, such as when bonding materials with differing thermal expansion rates (e.g., glass to metal or glass to plastic)
Applications[1]	Adhering auto trim, appliance trim and parts; assembling plastic toys; bonding gaskets in refrigeration units, signs and sign letters; caulking cement and masonry; making formed-in-place gaskets for compressors, gearboxes and pumps; sealing flashing, vents, gutters, marine cabins and windows; waterproofing leakproof tractor cabs	Bonding and sealing electrical equipment, power and control connections, motors, cover plates, instrument lenses, regulators, junction boxes, and control panels; sealing refrigerator and freezer liners	Sealing and repairing roof penetrations, gutters, concrete floor seams, marine equipment and windows, pipes, and threaded connections; assembling original equipment components		Sealing openings in modules and housings; adding mechanical stability to individual components; assembly of components on printed wiring boards (PWBs); sealing in and around wired and electrical leads; yoke assembly	Sealing openings in modules and housings; assembly of components on printed wiring boards (PWBs); sealing in and around wired and electrical leads	Adhering commonly used materials, including enameled and painted steel, aluminum, ceramic and glass, as well as to certain plastics used in engineering applications; formed-in-place gasket (FIPG) applications
Temperature Range[2], °F/°C, continuous (intermittent)	-65 to 300 (350)/-54 to 149 (177)	-65 to 350 (400)/-55 to 177 (204)	-67 to 300 (350)/-55 to 149 (177)		-49 to 392/-45 to 200	-49 to 392/-45 to 200	-40 to 356/-40 to 180
Skin-Over Time, min	25	15	20		–	–	15
Tack-Free Time, min	45	30	50		33	63.8	41
Extrustion Rate, g/min	110	150	133		199.2	78.6	185
Durometer, Shore A	37	25	35		31	45.6	32
Tensile, PSI	225	275	350		270	138	363
Elongation	640	350	420		–	626	680
Specific Gravity	1.52	1.33	1.33		1.02	1.10	1.4
Listings/Specs	UL 94 HB	FDA 21[3], NSF 51, NSF 61, UL 94 HB	UL 94 HB		UL 94 HB	MIL-A-46146 Group II, TY I, UL 94 HB	-
Color	Black, gray, white	Off-white	Black, gray, off-white		White	Clear translucent	Black, white, gray
Sealant Type for Fluid Resistance Table	MQ	MQ	MQ		MQ	MQ	MQ
Primerless Adhesion							
Acrylic	•••	NR	••		••	NR	••••
Acrylonitrile Butadiene Styrene (ABS)	••••	NR	••••		••	NR	••••
Low Density Polyethylene (LDPE)	NR	NR	NR		NR	NR	NR
Nylon 6/6	••••	•••	••••		••	••	••••
Polycarbonate	NR	NR	••••		NR	NR	NR
Polypropylene (PP)	NR	NR	NR		NR	NR	NR
Glass	••••	••••	••••		•	•••	••••
Aluminum, Mill Finish	••••	••••	••••		NR	•	••••
Copper	•••	NR	••••		••	NR	••••
Steel, Galvanized	••••	••••	••••		•	NR	••••
Steel, Low Carbon	••	••••	••••		NR	•	••••
Steel, Stainless	•	••	••••		NR	NR	•••

NR = Not recommended; • = Limited; •• = Fair; ••• = Good; •••• = Excellent

[1]Most paints will not adhere to sealant; not for underwater structural or adhesive applications; requires atmospheric moisture to cure. May stress-crack some plastics; test before use.
[2]Estimated service temperatures based on product formulation and laboratory testing. Actual service temperature range is dependent on other factors, including the specific application environment.
[3]Meets FDA CFR 21.177.2600 and FDA CFR 21.175.105.

DOWSIL™ Silicone Sealants and Foams for Industrial, Appliance and Maintenance

TABLE IV. Two-part Alkoxy and One-Part Oxime (Neutral-Cure) Sealants

	Neutral, Two-Component			Neutral, Oxime		
	SILASTIC™ Q3-3636	DOWSIL™ 236 Dispersion		DOWSIL™ 737 Neutral Cure Sealant	DOWSIL™ 750 Plastic Surface Adhesive/Sealant	DOWSIL™ 1437 Industrial Sealant and Adhesive
Special Features	Fast cure at room temperature; good, durable adhesion; reduced weight loss (fogging) at high operating temperatures; fast assembly process; adhesion to a wide variety of substrates; through cure and not an outside-inward cure like typical moisture-cure adhesives; not humidity-cure-sensitive	Excellent release; weather resistance; excellent electrical insulator; coating; 675 cps viscosity		Fast cure	Excellent adhesion to a wide range of substrates, including polymeric surfaces that are traditionally difficult to adhere to, such as anodized aluminum, vinyl, PVC, polypropylene, polyethylene, powder coat, paint and fluoropolymer coatings; priming not required on most surfaces; usable over wide temperature range	Fast cure; adheres to glass, metals and many plastics; wide temperature range
Primary Uses	Durable adhesive sealing of components that must perform in difficult environments	Release coating for surfaces that offer protection from weathering, corrosion and dirt		General manufacturing assembly operations where quick cure and good adhesion are important	Adhering, bonding and sealing a wide range of low-energy metallic and thermoplastic surfaces	Industrial assembly and maintenance applications
Applications[1]	Bonding of polycarbonate or glass lenses to the reflector housing of headlamps and fog lamps; in appliance manufacturing, especially for oven and ceramic hob assembly or for bonding glass to metal, glass to painted metal or glass to plastic	Easing cleanup of latex-manufacturing equipment and paint-spraying operations and removal of flash in urethane and polyester molding; preventing adhesion and buildup on conveyor belts, paper and fabric rolls; reducing buildup on waste-handling equipment		OEM and assembly applications; substitute for mechanical fasteners on appliances; adhering plastic moldings to plastic substrates; waterproofing components; sealing coaxial connectors; protecting instrumentation; may be used on concrete and masonry	Interior air sealing between a sheet- or liquid-applied weather-resistant barrier and fenestration element; edge lap seal for weather-resistant barriers; sealing penetrations in weather-resistant barriers such as plumbing or ductwork; sealing other difficult-to-adhere surfaces, such as mill finishes and plastics	Automated application systems for OEM applications
Temperature Range[2], °F/°C, continuous (intermittent)	–	-40 to 300/-40 to 150		-85 to 350/-65 to 177	–	-60 to 300/-51 to 149
Skin-Over Time, min	2.5-10 min working time	85		5	15	
Tack-Free Time, min	5-20	120		14	–	9
Extrustion Rate, g/min	–	n/a		395	252	300-400
Durometer, Shore A	32-35	20		33	28	21
Tensile, PSI	>261	325		175	190	130
Elongation	>300	500		300	785	300
Specific Gravity	1.31 (base)/1.00-1.04 (catalyst)	1.64		1.04	1.38	1.04
Listings/Specs	–	–		UL 94 HB	–	UL 94 HB
Color	Gray, black, special black	White		Black, clear translucent, white	White	Clear translucent
Sealant Type for Fluid Resistance Table	MQ	MQ		MQ	MQ	MQ
Primerless Adhesion						
Acrylic	••••	Not Applicable (dispersion)		NR	••••	••••
Acrylonitrile Butadiene Styrene (ABS)	••	Not Applicable (dispersion)		•	••••	•••
Low Density Polyethylene (LDPE)	NR	Not Applicable (dispersion)		NR	•	NR
Nylon 6/6	•	Not Applicable (dispersion)		NR	••••	•••
Polycarbonate	••••	Not Applicable (dispersion)		••	••••	••••
Polypropylene (PP)	NR	Not Applicable (dispersion)		NR	••••	NR
Glass	••	Not Applicable (dispersion)		••••	••••	••••
Aluminum, Mill Finish	••	Not Applicable (dispersion)		••••	••••	••••
Copper	••••	Not Applicable (dispersion)		••	••••	••••
Steel, Galvanized	••••	Not Applicable (dispersion)		••	••••	••••
Steel, Low Carbon	••••	Not Applicable (dispersion)		••••	••••	••••
Steel, Stainless	••	Not Applicable (dispersion)		••••	••	••••

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[1]Most paints will not adhere to sealant; not for underwater structural or adhesive applications; requires atmospheric moisture to cure. May stress-crack some plastics; test before use.
[2]Estimated service temperatures based on product formulation and laboratory testing. Actual service temperature range is dependent on other factors, including the specific application environment.

Hot-melt, neutral-cure sealants are intended for assembly, bonding, sealing, gasketing and other OEM applications that require instant adhesion and high green strength.[1]

These sealants feature:

- Excellent adhesion to most substrates without the need for a primer
- Instant adhesion, enabling parts to be shipped out quickly
- Long open time
- Long pot life
- Low VOC
- Safe handling with nonhazardous composition and by-products
- Long life once cured

DOWSIL™ Silicone Sealants and Foams for Industrial, Appliance and Maintenance

TABLE V. Hot-Melt (Neutral-Cure) Sealants

	DOWSIL™ HM-2500 Assembly Sealant	DOWSIL™ HM-2510 Assembly Sealant	DOWSIL™ HM-2515 Assembly Sealant	DOWSIL™ HM-2520 Assembly Sealant	DOWSIL™ HM-2600 Silicone Assembly Sealant
Special Features	Offers the fastest build of green strength; 100% silicone sealant; high viscosity at room temperature resists flow of material, which reduces material squeeze-out; excellent clarity	Offers high robustness; multipurpose 100% silicone sealant; high viscosity at room temperature resists flow of material, which reduces material squeeze-out; excellent clarity	Lowest viscosity; 100% silicone sealant; can be used in assembly and lamination; dispensed in fine beads, fibers or spiral patterns; low durometer	Offers highest mechanical properties; 100% silicone; high viscosity at room temperature resists flow of material, which reduces material squeeze-out; translucent clear	Offers highest degree of mechanical adhesion and overall performance; 100% silicone; high durometer; excellent clarity
Specific Gravity	1.08	1.08	1.07	1.11	1.08
Viscosity at 120°C, Pa·s	200	110	27	110	70
15-Min Green Strength, MPa	0.06	0.04	0.004	0.03	0.03
Durometer, Shore A	49	38	14	31	60
Ultimate Tensile Strength, MPa	4.8	4.6	2.3	6	4.4
Ultimate Elongation, %	1,900	1,900	1,500	1,500	1,300
Tear Strength – Type B, pli	80	78	67	89	70
Peel Strength[2], pli	> 45	> 41	> 33	> 30	> 30
SAFT[3], °C	250	250	248	280	310
NSF/ANSI Standard 51 and 61	Yes	Yes	Yes	Yes	Pending[4]
FDA 21 CFR 177.2600[3]	Yes	Yes	Yes	Yes	Yes
UL 94 (Relative Thermal Index)	HB (105)	HB (105)	HB (105)[5]	N/A	HB (105)[5]
Color	Clear	Clear	Clear	Clear	Clear
Primerless Adhesion					
Acrylic	••••	••••	•••	••	••••
Acrylonitrile Butadiene Styrene (ABS)	••••	••••	••	••	••••
Low Density Polyethylene (LDPE)	••••	••••	••	••	••••
Nylon 6/6	••••	•••	••••	•••	••••
Polycarbonate	••••	•••	••	••	••••
Polypropylene (PP)	••••	••••	••••	•••	••••
Glass	••••	••••	••••	••••	••••
Aluminum, Mill Finish	••••	••••	••••	••••	•••
Copper	••••	••••	••••	•••	•••
Steel, Galvanized	••••	••••	••••	••••	••••
Steel, Low Carbon	••••	••••	••••	•••	••••
Steel, Stainless	••••	••••	••	••••	••••

NR = Not recommended; • = Limited; •• = Fair; ••• = Good; •••• = Excellent

[1]Most paints will not adhere to sealant; not for underwater structural or adhesive applications; requires atmospheric moisture to cure. May stress-crack some plastics; test before use.
[2]180° peel from various substrates based on ASTM C794: 21-day cure (24 ±2°C; 50 ±5% RH) + 7-day H_2O immersion.
[3]Shear adhesion failure temperature based on ASTM 4498.
[4]Not available; has not been submitted for testing and certification.
[5]Qualified only under electronics or lighting industry label.

TABLE VI. Silicone Foams (Two-Part, Addition Cure)

	SILASTIC™ 8257 Silicone Foam		DOWSIL™ 3-8209 Silicone Foam	DOWSIL™ 3-8219 RF Silicone Foam	DOWSIL™ 3-8259 RF Silicone Foam	
	White	Black			Gray	Dark Gray
Special Features	Low hardness (Shore 00); available in white and black; low density		Low to medium hardness (Shore 00); medium density	Medium hardness (Shore 00); medium to high density; reduced flow aids application to vertical surfaces	Medium hardness (Shore 00); available in gray and dark gray; high density; reduced flow aids application to vertical surfaces	
Viscosity, mPas	A: 21,000 B: 12,000	A: 20,000 B: 12,000	A: 14,000 B: 15,000	A: 21,000 B: 40,000	A: 68,000 B: 63,000	A: 64,000 B: 62,000
Snap Time, sec	230	240	220	200	200	200
Tack-Free Time, min	8	8	7	6	7	6
Density, kg/m³	140	150	250	300	330	330
Flowability, cm	Flowable	Flowable	Flowable	17	15	16
Cell Structure, Zellen/3 cm	35	30	Fine	Fine	Fine	Fine
Hardness, Shore 00	25	25	45	45	50	50

Two-part, addition-cure silicone foams are designed to be dispensed and cured directly on parts to form an integrated compression gasket. They typically are used in automotive parts, including seals for vibration and noise damping, housings for electronic devices, exterior lighting, and domestic appliance components.

These sealants feature:

- Room temperature cure (RTV)
- 1:1 mix ratio
- CFC-free content
- Low post-cure compression set
- Stability and flexibility across a wide range of temperatures

Surface Preparation

Although DOWSIL™ silicone sealants possess excellent bond strength, maximum adhesion is only attained on surfaces that are clean and dry. Contaminants – such as dirt, grease, water, tar or rust – act as release agents and prevent the formation of durable bonds. Use of a primer does not negate the necessity for proper surface cleaning.

Wet or dirty surfaces should be properly prepared before sealants are applied.

- Wipe contaminated surface with a clean, oil-free cloth.
- Rewipe surface with a suitable cleaner or industrial solvent, such as isopropyl alcohol (IPA), mineral spirits, naphtha or ketones. Note: Do not clean surface with detergent or soap. (Soap residue may act as release agent.)
- Rough rubber surfaces with sandpaper. Make a spot-check to determine the adhesion of sealants for each application. Bond strength will increase as the sealant cures.

The active ingredients must thoroughly wet-out and coat the bonding surfaces. Mild abrasion, solvent cleaning, plasma, corona discharge and other pretreatments have been used to clean and enhance surface reactivity to bonding. In general, light surface abrasion is recommended whenever possible, because it promotes good cleaning and increases the surface area for bonding. Clean and/or degrease surfaces with DOWSIL™ OS Fluids, naphtha, mineral spirits, methyl ethyl ketone (MEK), or other suitable solvents that will remove oils and other contaminants that may be present. A final surface wipe with acetone or IPA also may be helpful.

Some cleaning techniques may give better results than others; determine the best technique for your application. For especially difficult-to-bond-to surfaces, it may be necessary to increase the surface reactivity by using chemical etchants or oxidizers or by exposing the surface to UV, corona, plasma or flame sources. Allow solvents to completely evaporate before applying the primer.

DOWSIL™ Silicone Sealants and Foams for Industrial, Appliance and Maintenance

TABLE VII. Cleaners and Primers

	DOWSIL™ OS-2 Silicone Cleaner & Solvent	DOWSIL™ DS-1000 Aqueous Silicone Cleaner	DOWSIL™ DS-2025 Silicone Cleaning Solvent
Cleaners			
Special Features	VOC exempt (VOC = 0 g/L); certified as a Clean Air Solvent by the California South Coast Air Quality Management District; easy to use; low in toxicity; essentially odorless; safe on plastics and noncorrosive to metals; ideal for diluting and tailoring the viscosity of silicones	Cleaner for use on uncured silicone; effectively emulsifies silicone oils, greases and uncured elastomers; effective degreaser on a wide range of applications; aqueous solution; complies with EU detergent regulation on biodegradability of surfactants; nonflammable	Cleaner for use on cured silicone; rapid digestion of cured silicone; leaves silicone-free surface; nonflammable; high flash point; does not contain aromatic solvent; nonhalogenated solvent; low viscosity; multiple use and recyclable
Applications	Cleaning plastics, metals and other surfaces or preparing these surfaces for painting, bonding or sealing	Cleaning surfaces, equipment and manufacturing units contaminated with nonsubstantive uncured silicone residues	Cleaning surfaces, equipment and manufacturing units contaminated with substantive cured silicone residues

	DOWSIL™ PR-1200 RTV Prime Coat	DOWSIL™ P5200 Adhesion Promoter	DOWSIL™ 1200 OS Primer	DOWSIL™ Primer-C OS
Primers				
Special Features	Significantly improves the adhesion of silicone sealants to a wide variety of challenging substrates; available in clear and red	Significantly improves the adhesion of silicone sealants with low VOC to a wide variety of challenging substrates; available in clear and red	Useful for both moisture-curing-RTV and heat-curing silicones; diluted in low-molecular-weight silicone fluid; meets many international regulations for low VOC content (including European Union); similar to DOWSIL™ P5200 Adhesion Promoter	Improves adhesion of silicone sealants to many substrates, including plastics; accelerates adhesion build of two-part structural sealants; conforms to South Coast and Bay Air Quality Management District Regulations for Architectural Sealant Primers; user-friendly with low VOC; improves quality control processes by offering a visual confirmation of primer presence; quick cure time; nonstaining
Applications	Improves the adhesion of silicone sealants, coatings and rubber to masonry, wood, granite, metals, glass, ceramics, plastics, rubbers and coatings	Improves the adhesion of silicone sealants, coatings and rubber to masonry, wood, granite, plastics, rubbers and coatings	Enhances bonding/adhesion of RTV and heat-cure silicones to ceramics, glass, wood, masonry, structural plastics (including FR-4) and many metals	In-shop or field use with one- and two-part DOWSIL™ brand sealants; accelerating adhesion to coated aluminum substrates, such as polyvinylidene fluoride (PVDF) or Kynar® based paints

Primers and Adhesion Promoters

For maximum adhesion, DOWSIL™ brand primer is recommended. After solvent-cleaning, apply a thin coat of DOWSIL™ primer in a very light, even coat by wiping, dipping or spraying. Wipe off excess material to avoid overapplication, which generally appears as a white, chalky surface. When dip- or spray-coating, diluting by a factor of 2 to 4 with additional solvent may avoid excessive buildup.

Primer Cure

At normal room temperatures and 50% relative humidity conditions, allow the primer to air-dry from five to 30 minutes. Low-humidity and/or low-temperature conditions require longer cure times. Mild heat acceleration of the cure rate may be possible, but temperatures above 140°F (60°C) are not recommended. During application, the carrier solvent typically evaporates quickly, allowing the active ingredients to begin to react with atmospheric moisture and bonding surfaces. For optimal bonding, different cure times may be required for different temperature and humidity conditions; determine the best cure schedule and conditions for your application. Apply the desired silicone sealant after the primer, prime coat or adhesion promoter has fully cured.

Sealant Application

Apply DOWSIL™ brand adhesives/sealants to one of the prepared surfaces, then quickly cover with the other substrate to be bonded. On exposure to moisture, the freshly applied material will “skin over” in about 5 to 10 minutes (depending on the product) at room temperature and 50% relative humidity.

Tool the sealant to coat or wet the substrate surface for maximum bonding. This typically is done by properly filling the joint first and then dry-tooling the sealant by pressing and pulling a round-tipped spatula or similar tool across the sealant surface. This step forces sealant into joint surfaces and helps remove air pockets or voids at the bond line. Tooling should be completed before the skin forms.

Keeping the primed surface clean may allow application of the silicone elastomer to be delayed – but in some cases, if too much time elapses, lower adhesion can result. Users are encouraged to determine the optimal cure conditions for their specific applications and the effects of any hold times imposed between applications of the primer and sealant. In some cases, it may be recommended to reprime surfaces if 8 to 24 hours elapse before the silicone sealant can be applied.

Cure Time

After skin formation, cure continues inward from the surface. In 24 hours (at room temperature and 50% relative humidity), DOWSIL™ adhesive/sealant will cure to a depth of about 1/8". Very deep sections, especially when access to atmospheric moisture is restricted, will take longer to cure completely. Cure time is extended at lower humidity levels.

Because the sealants cure by reaction with moisture in the air, keep the container tightly sealed when not in use. A plug of used material may form in the tip of a tube or cartridge during storage. This is easily removed and does not affect the remaining contents.

Compatibility

Some DOWSIL™ adhesives/sealants release a small amount of acetic acid during cure. This may cause corrosion on some metallic parts or substrates, especially in direct contact or when the cure is carried out in a totally enclosed environment that does not allow cure by-products to escape.

Platinum catalysts used in addition-cure silicone sealants – including silicone foams – are sensitive to contamination by certain compounds that have the power to stop or inhibit cure. For more information, refer to "Guarding against potential inhibitors/poisons of platinum-catalyzed addition-cure release coatings," Form No. 30-1053-01, available on **consumer.dow.com** or upon request from Dow customer service.

Cleanup/Sealant Removal

Cured silicone can be removed from a surface with a sharp blade if the cured silicone material is accessible. If it is difficult to cut through, solvents – such as IPA, toluene, xylene, naphtha or mineral spirits – may be used to soften the cured sealant. DOWSIL™ OS Fluids also can be used to help soften cured silicone and/or remove silicone residue after it has been removed mechanically from a surface. DOWSIL™ OS Fluids will generally be a lower-VOC alternative to standard solvents.

Limitations

Refer to individual product data sheets for use limitations.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For more information, please see our website, consumer.dow.com, or consult your local Dow representative.

How to Contact Us

For more than 60 years, OEM designers, maintenance and materials engineers around the world have trusted the Dow brand for performance and expertise to solve or prevent sealant problems. Dow has sales offices, manufacturing sites, and science and technology laboratories – and a network of more than 3,000 distributors – around the world.

Images: Cover – dow_41989261541, dow_38036150943, dow_40390826412, dow_40370589916, dow_41027740209; Page 2 – dow_40387266913; Page 3 – dow_40268224764; Page 4 – dow_41027740209; Page 12 – dow_40643696284; Page 16 – dow_40306943958

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