Consumer Solutions

Flexible Options for Processing, Protection, and Performance from a Conformal Coating

DOWSIL™

Why Choose Dow Performance Silicones?

Dow Performance Silicones has been a global leader in silicone-based technology for more than 70 years. Headquartered in Michigan, USA, we maintain manufacturing sites, sales and customer service offices, and research and development labs in every major geographic market worldwide to ensure you receive fast, reliable support for your processing and application development needs.

Unique product technology

To describe Dow Performance Silicones is to describe the history and evolution of silicone technology, which generated a legacy of innovative and reliable products under the Dow Corning label for more than seven decades. Today that legacy continues under the DOWSIL™ brand name, which encompasses more than 7,000 proven silicone products and services. Few companies offer a conformal coatings portfolio with comparable breadth and proven performance, and none match our history in silicone technology.

Extensive know-how

Dow Performance Silicones multiplies the value of its products with deep in-house expertise as well as an extended network of industry resources.

Collaborative culture

Dow Performance Silicones works closely with our customers to help reduce time, risk, and cost at every stage of your new product development.

Stability

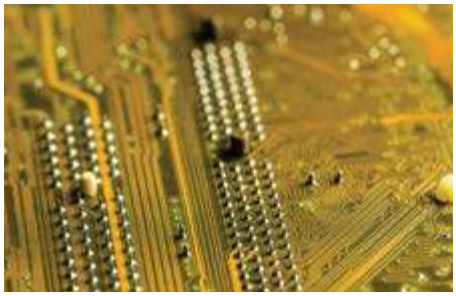
For over seven decades, Dow Performance Silicones has been a global leader, who invests in manufacturing and quality to help fuel customer innovation through a consistent supply of proven silicone products.

Why Silicone Coatings from Dow?

In one word: Reliability. The versatility of silicone chemistry expands design freedoms, increases processing options, broadens performance parameters, and introduces unique options for sustainability. Compared specifically to organic-based coatings, silicone solutions offer these valuable benefits.

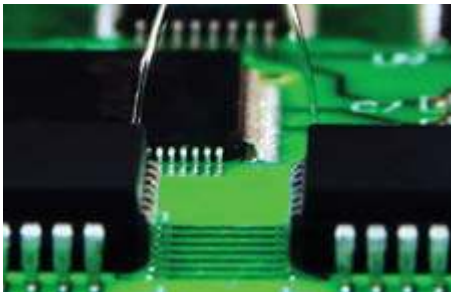
Greater thermal stability

Silicones perform reliably at sustained temperatures as low as -45°C and as high as 150°C – a far broader range than organic coatings, which degrade at such extreme temperatures. Many silicones can even withstand brief exposure to temperatures up to 250°C.



Stress relief

Silicone conformal coatings offer an extraordinarily broad range of durometers, as well as extremely low modulus options. That means they deliver better stress relief on delicate board components during thermal cycling.



Solventless Fast Cure

Silicones – including UV-cure grades – are nearly all solventless, making them the material of choice where emerging regulations impose complex and costly special handling and processing requirements.

Choose Your Viscosity

DOWSIL™ conformal coatings come in a range of viscosities to help you meet all of your processing and application demands.

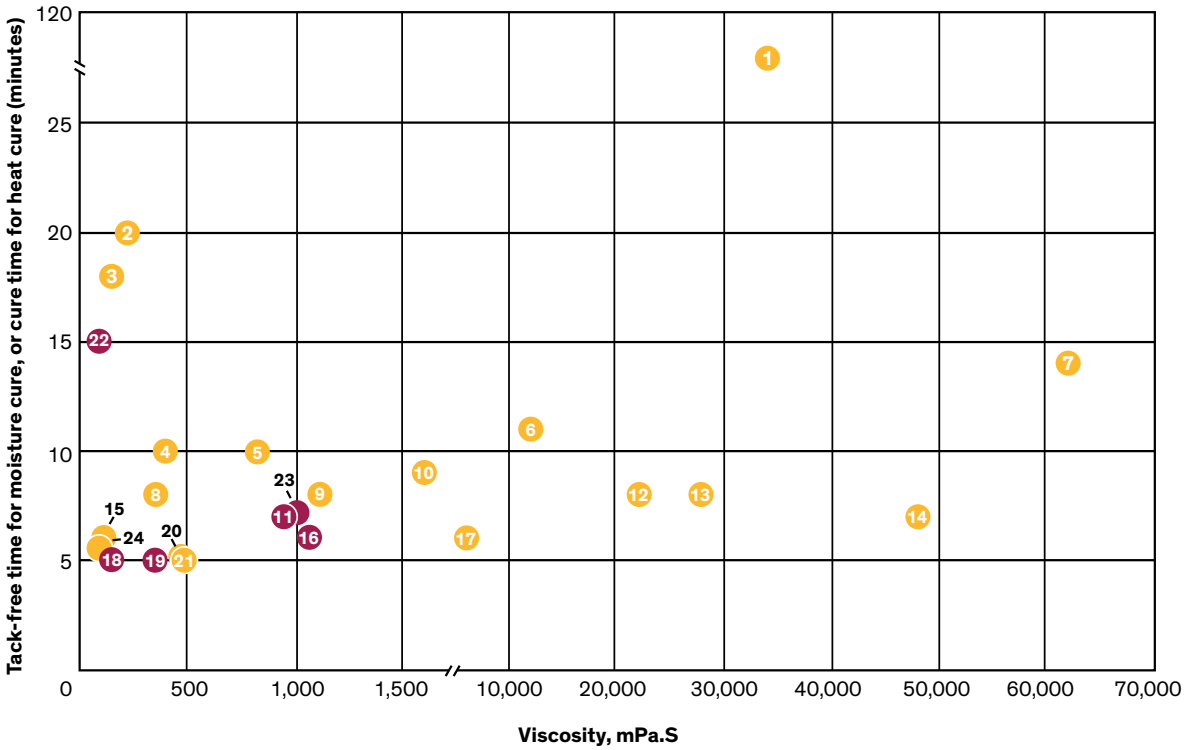
Low viscosity for high-speed production

Our low-viscosity silicone coatings support high-speed production methods, including manual or automated spraying, flow, or jetting techniques. These faster flowing materials are also suitable options when you want your coating to flow through vias or under chips.

Higher viscosity for greater control

Offering incrementally higher viscosities, this category of silicone coatings provides increasing control over the speed and distance of flow, to prevent their spread into “no go” areas. Higher viscosity silicones also enable thicker coating layers in one pass, and some grades even offer a stable coat on tall vertical surfaces.

Viscosity/Cure Profile



1 DOWSIL™ 3140 RTV Coating
2 DOWSIL™ CC-4555 Long Bath Life Conformal Coating*
3 DOWSIL™ HC 2000 Coating
4 DOWSIL™ HC 2100 Coating
5 DOWSIL™ Q1-4010 Conformal Coating*
6 DOWSIL™ HC 1000 Gray Conformal Coating
7 DOWSIL™ 3-1944 RTV Coating
8 DOWSIL™ 3-1953 Conformal Coating
9 DOWSIL™ SE 9187 L Black, Clear or White Adhesive
10 DOWSIL™ HC 1100 Coating
11 DOWSIL™ 1-2577 Conformal Coating
12 DOWSIL™ SE 9189 L Gray or White RTV Adhesive
13 DOWSIL™ SE 9186 L Sealant
14 DOWSIL™ 3-1944 HP RTV Coating
15 DOWSIL™ 3-1965 Conformal Coating
16 DOWSIL™ 1-2577 Low VOC Conformal Coating
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20 SYLGARD™ 1-4128 Conformal Coating Kit*
21 DOWSIL™ 1-4105 Conformal Coating*
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24 DOWSIL™ CC-3122 Conformal Coating

Solventless *Solvent based* **Heat cure*

Choose Your Cure Profile

Versatile DOWSIL™ silicone coatings offer flexible cure profiles to allow you to select the optimal solution for your production line setup, volume, and application.

Fast, moisture cure

These coatings cure quickly at room temperature to provide a “dispense and forget” solution that is tack-free, and ready to move down the production line in less than ten minutes, making them the ideal option for high-volume assembly operations. Cure – and productivity – can be further accelerated with application of heat or irradiation with ultraviolet (UV) energy.

Extended-working-time moisture cure

Silicone coatings in this category also cure at room temperature, but permit more time for the material to flow further over large or complex boards. They are also the preferred solution for applications that require a thicker coating.

Heat cure

Sometimes labeled “command cure” for the control they allow over the rate of cure, coatings in this category are the material of choice when your processing operation demands full cure in under five minutes. They may also impose lower stress on board components during thermal cycling.

Choose Your Hardness

Silicones can deliver lower modulus than any organic conformal coating material. This makes them ideal for minimizing stress on small, fine wires or sensitive solder joints. Yet silicone's versatile chemistry enables hard coatings that exhibit abrasion resistance, approaching acrylic or urethane solutions. Regardless of what your application requires, Dow can provide a conformal coating with the right durometers to meet your demands.

Highest stress relief
(<15 Shore A)

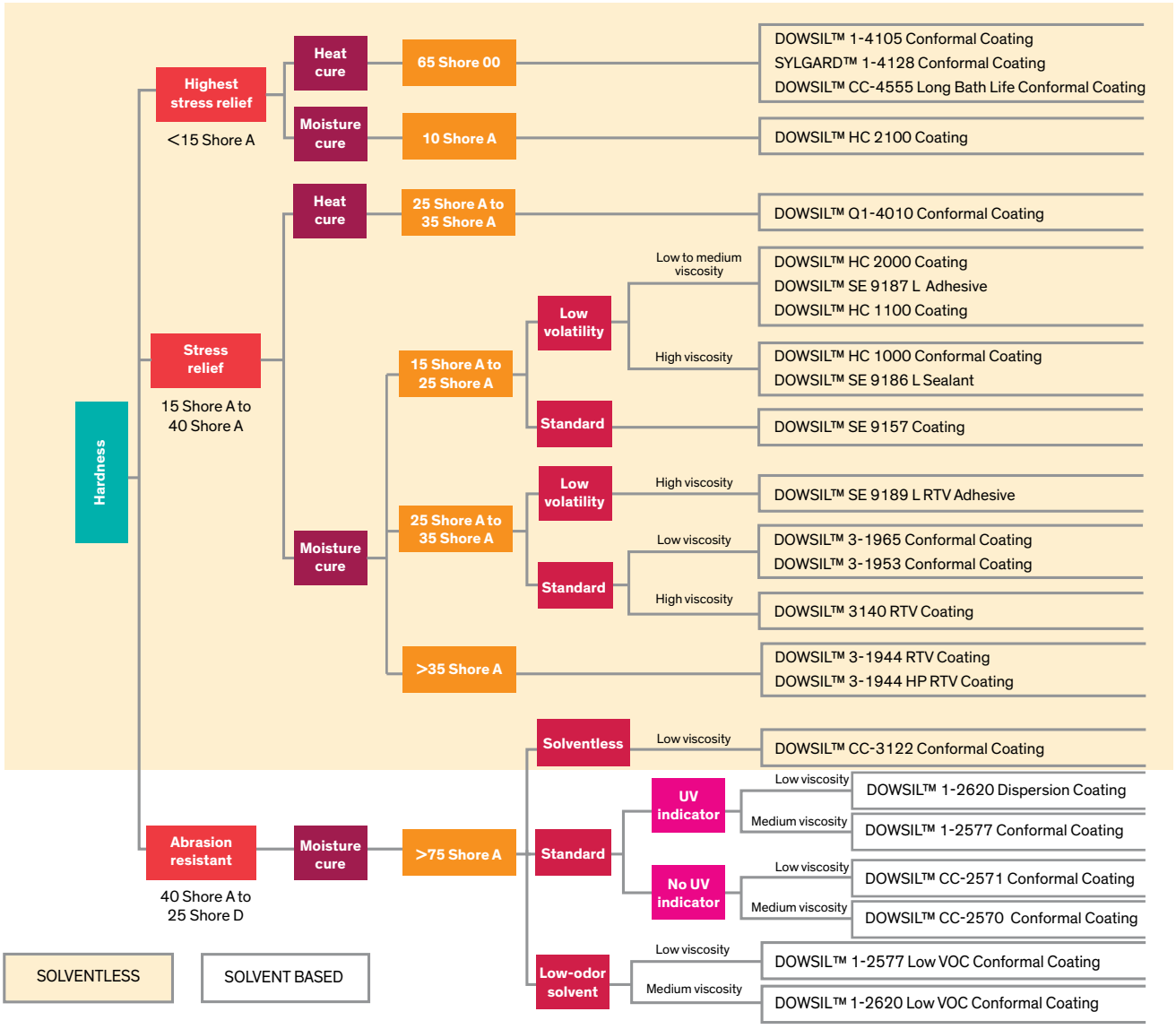
Our softest silicone coatings maximize stress relief on very fine wires, or dense components that can be most susceptible to thermal cycling.

Stress relief
(15 Shore A to 40 Shore A)

The ideal alternative to brittle organic coatings, silicones in this category offer an optimal combination of stress relief and protection against harsher environmental elements, such as moisture, dust, vibration, and impact.

Abrasion resistant
(40 Shore A to 25 Shore D)

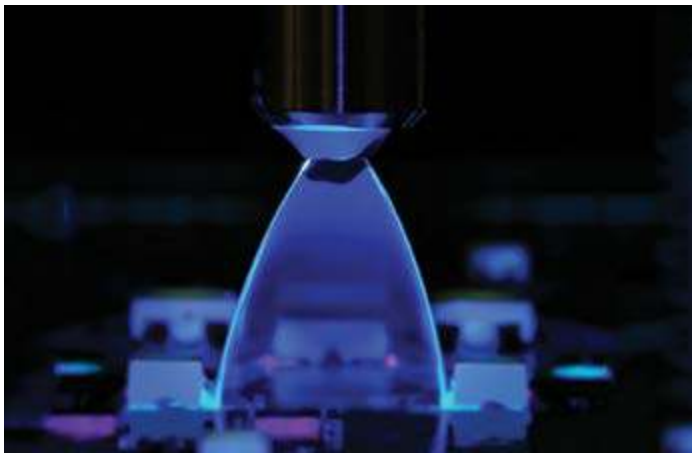
Silicones in this class cure to form hard, tough coatings comparable to acrylics – except silicones offer greater flexibility, and perform reliably at much higher and lower temperatures.



Choose Solventless Silicones

While Dow offers solvent-based elastoplastic coatings that mimic the hardness of acrylic, most of our silicone products are solventless.

This is becoming an important selection criterion for coatings, as the use of solvents may require implementation of worker safety protocols, special equipment, handling and processing considerations for flammable solvents, and the need to meet environmental regulations. Choosing solventless silicone coatings can eliminate complexity, cost, and time to your manufacturing operations.

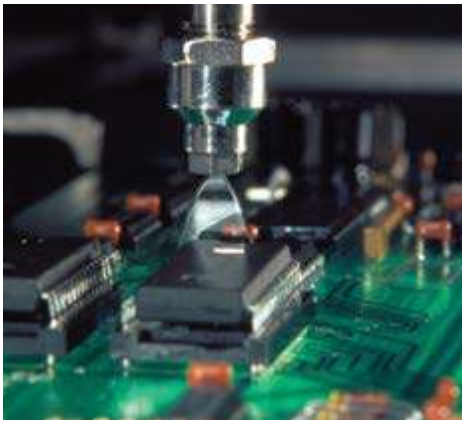


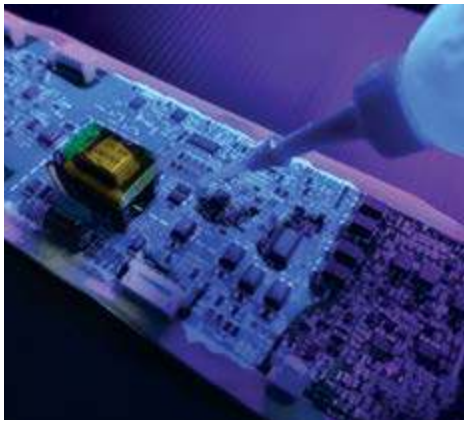
	Product Name	Features & Benefits	Viscosity, cP	Durometer	Tack-Free Time (minutes)	Room-Temperature Cure Time (minutes)*	Heat Cure Time (minutes)	Heat Cure Conditions	Specific Gravity	UL 94 Rating	UL 746 E Approval	Mil Specification	Mil Specification Type, Class Group	IPC-CC Test
Solventless RTV Conformal Coatings	DOWSIL™ 3-1944 HP RTV Coating	Allows higher-thickness coverage in critical areas	49,000	36 Shore A	7	60	–	–	1	V-0	No	–	–	–
	DOWSIL™ 3-1944 RTV Coating	Coverage of taller components, wire bonds, and edges	64,000	36 Shore A	14	60	–	–	1.03	V-0	Yes	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	DOWSIL™ 3-1953 Conformal Coating	Medium viscosity	350	34 Shore A	8	60	0.5	60°C/ 15% RH	0.98	V-0	Yes	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	DOWSIL™ 3-1965 Conformal Coating	Thinner cured coating; Greater coverage area per kg; Faster dispensing; Easier to jet-dispense	115	33 Shore A	6	60	0.5	60°C/ 15% RH	0.99	V-0	No	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	DOWSIL™ 3140 RTV Coating	Allows higher one-pass coating thickness	34,400	32 Shore A	116	72 hours	–	–	1.05	V-1	Yes	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	DOWSIL™ CC-3122 Conformal Coating	Low viscosity; Controlled volatility	80	75 Shore A	6	–	–	–	1.03	–	No	–	–	–
	DOWSIL™ HC 1000 Conformal Coating, Gray	High viscosity; Controlled volatility	12,000	24 Shore A	11	30	–	–	1.07	V-0	No	–	–	–
	DOWSIL™ HC 1100 Coating, Gray	Controlled volatility	2,375	22 Shore A	9	30	–	–	1.08	V-0	No	–	–	–

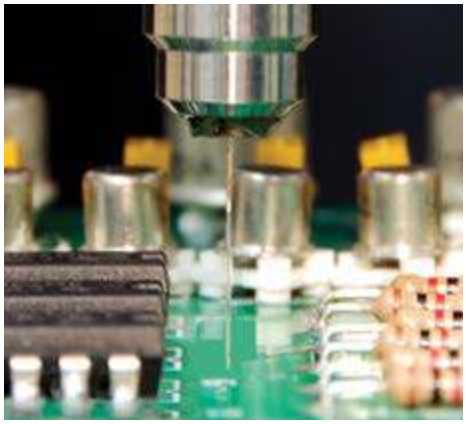
*Highly dependent on thickness, temperature, humidity, and other cure conditions.

	Product Name	Features & Benefits	Viscosity, cP	Durometer	Tack-Free Time (minutes)	Room-Temperature Cure Time (minutes)*	Heat Cure Time (minutes)	Heat Cure Conditions	Specific Gravity	UL 94 Rating	UL 746 E Approval	Mil Specification	Mil Specification Type, Class Group	IPC-CC Test
Solventless RTV Conformal Coatings	DOWSIL™ HC 2000 Coating	Low viscosity; Controlled volatility	150	25 Shore A	18	210	–	–	1.01		No	–	–	–
	DOWSIL™ HC 2100 Coating	Low viscosity; Controlled volatility	400	10 Shore A	10	30	–	–	0.98		No	–	–	–
	DOWSIL™ SE 9157 Coating, Clear	Medium viscosity	5,675	25 Shore A	6	300	–	–	1	–	No	–	–	–
	DOWSIL™ SE 9186 L Sealant, Translucent or Black	High viscosity; Controlled volatility	27,000	25 Shore A	8	300	–	–	1.02	–	No	–	–	–
	DOWSIL™ SE 9187 L Adhesive Black, Clear (Translucent), or White	Medium viscosity; Controlled volatility	1,100	17 Shore A	8	300	–	–	1	V-0**	Yes**	–	–	–
	DOWSIL™ SE 9189 L RTV Adhesive, Gray or White	High viscosity; Controlled volatility	24,500	33 Shore A	8	300	–	–	1.19	V-0	No	–	–	–
Solventless Heat Cure Conformal Coatings	DOWSIL™ 1-4105 Conformal Coating	Long open time; "Command cure;" Uses CTE to its advantage to hold chips down to board	450	65 Shore 00	–	–	10	105°C	0.97	V-1	Yes	–	–	–
	DOWSIL™ CC-4555 Long Bath Life Conformal Coating	Optimized version for dip-coating	225	78 Shore 00	–	–	20	120°C	0.98	V-0	No	–	–	–
	DOWSIL™ Q1-4010 Conformal Coating	Allows higher one-pass coating thickness	825	33 Shore A	–	–	10	100°C	1	V-1	Yes	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	SYLGARD™ 1-4128 Conformal Coating	Two-part; Much longer room-temperature shelf life	470	65 Shore 00	–	–	5	105°C	0.97	–	No	–	–	–
Solvent-Based RTV Conformal Coatings	DOWSIL™ 1-2577 Conformal Coating	Medium viscosity with firm, abrasion-resistant surface after cure	950	20 Shore D	7	60	2	60°C/ 15% RH	1.11	V-0	Yes	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	DOWSIL™ 1-2577 Low VOC Conformal Coating	Solvent is not considered a volatile organic compound; Low odor; Not ozone-depleting	1,050	25 Shore D	6	60	2	60°C/ 15% RH	1.12	V-0	Yes	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	DOWSIL™ 1-2620 Dispersion Coating	Thinner cured coating; Greater coverage area per kg; Faster dispensing	150	25 Shore D	5	60	2	60°C/ 15% RH	1.11	V-0	Yes	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	DOWSIL™ 1-2620 Low VOC Conformal Coating	Low viscosity	350	25 Shore D	5	60	2	60°C/ 15% RH	1.12	V-0	Yes	MIL-I-46058C Amend 7	Type SR, QPL	IPC-CC-830
	DOWSIL™ CC-2570 Conformal Coating	No fluorescence; Better optical performance	1,000	25 Shore D	7	60	2	60°C/ 15% RH	1.11	V-0	Yes	–	–	–
	DOWSIL™ CC-2571 Conformal Coating	No fluorescence; Better optical performance	75	25 Shore D	15	60	2	60°C/ 15% RH	1.11	V-0	Yes	–	–	–

*Highly dependent on thickness, temperature, humidity, and other cure conditions.
**Applies to translucent.







Learn More

We bring more than just an industry-leading portfolio of advanced silicone-based materials. As your dedicated innovation leader, we bring proven process and application expertise, a network of technical experts, a reliable global supply base, and world-class customer service.

To find out how we can support your applications, visit **consumer.dow.com/pcb**.

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