Technical Data Sheet

DOWSIL™ 3140 RTV Coating

One-part, translucent adhesive or coating with good flowability, good flame resistance, UL, IPC and Mil Spec tested

Features & Benefits

- Good flowability
- Room temperature cure
- No added solvents
- UL 94 V-1, IPC-CC-830 and MIL-A-46146 tested
- No mixing required
- Room temperature cure, no ovens required
- Faster in-line processing with optional heat acceleration
- Able to flow, fill or self-leveling after dispensing
- Can be considered for uses requiring added flame resistance, IPC or Mil Spec testing
- UV indicator for manual and automated inspection

Composition

- One part
- Polydimethylsiloxane adhesive

Applications

DOWSIL™ 3140 RTV Coating is suitable for:

- Protection of corrosion-sensitive components
- Protection of rigid and flexible circuit boards
- Improved pin/solder joint coverage
- Thin-section encapsulation
- Pin sealing

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Property	Unit	Result
One or Two-Part		One
Color		Clear to slightly hazy smooth viscous liquid
Viscosity	cP Pa-sec	34,400 34.4
Specific Gravity (Cured)		1.05
NVC (Non Volatile Content)	%	95.7
Tack-Free Time at 25°C	minutes	116

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Typical Properties (Cont.)

Property	Unit	Result
Tensile Strength	psi	434
Elongation	%	419
Durometer Shore A		31.6
Tensile Modulus	psi	103
Unprimed Adhesion – 180 Degree Peel Strength	ppi	40
Dielectric Strength	volts/mil	385
	kV/mm	15
Volume Resistivity	ohm*cm	2.1 x 10 (14)
Dielectric Constant at 100 Hz		2.52
Dielectric Constant at 100 kHz		2.52
Dissipation Factor at 100 Hz		0.004
Dissipation Factor at 100 kHz		0.001
Agency Listing		IPC-CC-830B, U: 746
Mil Specification		Mil-I-46058C
UL Flammability Classification	NA	94 V-1 @ 1.4 mm (UL file QMJU2 - E81611)
	NA	94-HB @ 1.9 mm (UL file QMFZ2 – E40195)

Description

Dow one-part moisture cure adhesives are generally cured at room temperature and in an environment of 30 to 80 percent relative humidity eliminating the need for curing ovens and the associated costs of energy and capital. Greater than 90 percent of full physical properties should be attained within 24 to 72 hours and varies according to product. Faster manufacturing throughput can be achieved since the adhesive and component can be handled in much shorter times of about 10 to 120 minutes, depending on the adhesive selected and the amount applied. These adhesives are not typically used in highly confined spaces or where a deep section cure is required as they generally cure from the exposed surface inward at a rate of 0.25 inch per seven days. Cure progresses from the outer exposed surface and is dependent on the moisture in the air. Working time is generally a few minutes to an hour for these products until a surface skin begins to form. Mild heat below 60°C (140°F) may be used to increase through-put by accelerating the cure. Dow adhesives retain their original physical and electrical properties over a broad range of operating conditions which enhance the reliability and service life of devices.

Application Methods

- Brush
- Flow
- Syringe or needle

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Usable Life And Storage

For best results, Dow adhesives should be stored at or below the storage temperature listed on the product label. Special precautions must be taken to prevent moisture from contacting these materials. Containers should be kept tightly closed with head or air space minimized. Partially filled containers should be purged with dry air or other gases, such as nitrogen. The product should be stored in its original packaging with the cover tightly attached to avoid any contamination. Store in accordance with any special instructions listed on the product label. The product should be used by its Use Before date as indicated on the product label.

Preparing Surfaces

All surfaces should be thoroughly cleaned and/or degreased with Dow OS fluids, naphtha, mineral spirits, methyl ethyl ketone (MEK) or other suitable solvent. Solvents such as acetone or isopropyl alcohol (IPA) do not tend to remove oils well, and any oils remaining on the surface may interfere with adhesion. Light surface abrasion is recommended whenever possible, because it promotes good cleaning and increases the surface area for bonding. A final surface wipe with acetone or IPA is also useful. Some cleaning techniques may provide better results than others; users should determine the best techniques for their particular applications.

Substrate Testing

Due to the wide variety of substrate types and differences in substrate surface conditions, general statements on adhesion and bond strength are impossible. To ensure maximum bond strength on a particular substrate, cohesive failure of the product in a lap shear or similar test is needed to ensure compatibility of the adhesive with the substrate being considered. Also, this test can be used to determine minimum cure time or to detect the presence of surface contaminants such as mold release agents, oils, greases and oxide films.

Adhesion

Dow adhesives are specially formulated to provide unprimed adhesion to many reactive metals, ceramics and glass, as well as to selected laminates, resins and plastics. However, good adhesion cannot be expected on non-reactive metal substrates or non-reactive plastic surfaces such as Teflon, polyethylene or polypropylene. Special surface treatments such as chemical etching or plasma treatment can sometimes provide a reactive surface and promote adhesion to these types of substrates Dow primers can be used to increase the chemical activity on difficult substrates. Poor adhesion may be experienced on plastic or rubber substrates that are highly plasticized, because the mobile plasticizers act as release agents. Small-scale laboratory evaluation of all substrates is recommended before production trials are made.

Useful Temperature Ranges

For most uses, silicone adhesives should be operational over a temperature range of -45 to 200°C (-49 to 392°F) for long periods of time. However, at both the low and high temperature ends of the spectrum, behavior of the materials and performance in particular applications can become more complex and require additional considerations. For low-temperature performance, thermal cycling to conditions such as -55°C (-67°F) may be possible, but performance should be verified for your parts or assemblies. Factors that may influence performance are configuration and stress sensitivity of components, cooling rates and hold times, and prior temperature history. At the high-temperature end, the durability of the cured silicone elastomer is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain useable.

Solvent Exposure

The silicone adhesive discussed in this literature is intended only to survive splash or intermittent exposures. It is not suited for continuous solvent or fuel exposure. Testing should be done to confirm performance of the adhesives under these conditions.

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Handling Precautions

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Packaging Information

Multiple packaging sizes are available for this product.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

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 specialists available in each area.

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

How Can We Help You Today?

Tell us about your performance, design and manufacturing challenges. Let us put our silicon-based materials expertise, application knowledge and processing experience to work for you.

For more information about our materials and capabilities, visit **www.consumer.dow.com**.

To discuss how we could work together to meet your specific needs, go to **www.consumer.dow.com** for a contact close to your location. Dow has customer service teams, science and technology centers, application support teams, sales offices and manufacturing sites around the globe.

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