Technical Data Sheet

DOWSIL™ 1-2577 Conformal Coating

One-part, translucent medium viscosity conformal coating with firm, abrasion resistant surface after cure

Features & Benefits

- Cures to a tough, elastoplastic, resilient, abrasion resistant surface
- Solvent-borne resin coating
- Room temperature cure, no ovens required
- Optional mild heat acceleration (after solvent flash-off) can speed in-line processing
- UV indicator allows for automated inspection
- UL 94 V-0 flammability rating
- UL 746E Recognized
- IPC-CC-830, Amendment 1 Approved
- Mil-I-46058C, Amendment 7 Approved
- Good adhesion allows use with many low-solids (no clean) and no-lead solders

Composition

- One part silicone resin solution

Applications

- DOWSIL™ 1-2577 Conformal Coating is suitable for protective coating for rigid and flexible circuit boards and for PCB system Printed Wiring Board (PWB) applications, particularly those requiring toughness and abrasion resistance.

Typical Properties

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

Property	Unit	Result
One or Two-Part		One
Color (Cured)		Translucent (Clear)
Viscosity	cP	950
	mPa-sec	950
	Pa-sec	1
Specific Gravity (Uncured)		1.04
Specific Gravity (Cured)		1.11
Tack-Free Time at 25°C	minutes	7
Tack-Free Time at 60°C/15% RH	minutes	1.3
Durometer Shore A		80

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Typical Properties (Cont.)

Property	Unit	Result
Dielectric Strength	volts/mil kV/mm	400 16
Volume Resistivity	ohm*cm	5E+13
Dielectric Constant at 100 Hz		2.74
Dielectric Constant at 100 kHz		2.74
Dissipation Factor at 100 Hz		0.0042
Dissipation Factor at 100 kHz		< 0.0002
Agency Listing		IPC-CC-830, Amend. 1 UL746E
UL Flammability Classification	NA	94 V-0
Mil Specification	NA	MIL-I-46058C, Amend. 7
NVC - Forced Draft Volatility	%	72.3

Description

Dow RTV conformal coatings have firm, dry surfaces for better handling and abrasion resistance after cure. Various viscosity versions facilitate different application methods. They require atmospheric moisture to cure (no ovens) and their cure rates can be accelerated by mild heat. They are supplied in solvent, with low-VOC versions available and have Mil spec, IPC-CC-830 and UL recognition. Conformal coatings are materials applied in thin layers onto printed circuits or other PCB system assembly substrates.

Application Methods

- Spray
- Brush
- Flow
- Dip
- Automated pattern coating

Processing/Curing

The time required to reach a tack-free state can be reduced with heat. When using heat for this purpose, allow adequate time for the solvent to evaporate prior to exposing to elevated temperatures in an air circulating oven. A typical cure schedule for 3 mil (75 micron) coatings is 10 minutes at room temperature, followed by 10 minutes at 60°C. If the coating blisters or contains bubbles, allow additional time at room temperature for the solvent to flash off prior to oven cure.

Pot Life And Cure Rate

The pot life of Dow RTV conformal coatings is dependent on the application method chosen. To extend pot life, minimize exposure to moisture by using dry air or dry nitrogen blanketing whenever possible.

Adhesion

With RTV cure coatings, adhesion typically lags behind cure and may take up to 72 hours to build in some coatings. Dow RTV conformal coatings are formulated to provide adhesion to most common PCB system assembly substrates and materials. It is recommended that the coatings be applied to clean and dry substrates prior to application. On certain difficult, low-surface energy surfaces, adhesion may be improved by priming or by special surface treatment such as chemical or plasma etching.

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Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT CONSUMER.DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

Special precautions must be taken to prevent moisture from contacting Dow RTV conformal coatings. Containers should be kept tightly closed and 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.

In some cases depending on storage, there may be a hazy appearance noticed in the containers when first opened, even though they are considered clear conformal coatings. It is normal for this to occur especially if the container has been sitting stagnant for several days or weeks. This is due to the solubility of the phenyl resin in the solvent and how long the container has been sitting in storage. The coating should cure to a clear consistency regardless of this initial appearance. Mild agitation can reconstitute the material so it is consistent in appearance and viscosity. Care should be taken if the Low VOC versions are in bladder bags. A gentle rolling of the pail should correct the problem and redistribute the solvent. This should be performed 24 hours before use, so any induced bubbles from the manual agitation or rolling process have a chance to dissipate.

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.

Repairability

In the manufacture of PCB system assemblies, it is often desirable to salvage or reclaim damaged or defective units. Dow RTV conformal coatings offer excellent reparability because they can be removed from substrates and circuitry by scraping or cutting, or by using solvents or stripping agents. If only one circuit component is to be replaced, a soldering iron may be applied directly through the coating to remove the component. Proper ventilation of any fume should be employed. After the circuit board has been repaired, the area should be cleaned by brushing or by using solvent, then dried and recoated. Heat cure coatings can be repaired with RTV coatings, but heat cure coatings may not work well when used to repair RTV coatings.

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Packaging Information

Multiple packaging sizes are available for this product. Please contact your local distributor or Dow representative for information on packaging size and availability.

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, 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.

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To discuss how we could work together to meet your specific needs, go to **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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