Technical Data Sheet

DOWSIL™ 3-1944 RTV Coating

Coating or adhesive with added UV indicator, good flowability, fast tack free time, good flame resistance, MIL A-46058 tested

Features & Benefits

- Flowable
- Compliant to most international regulations
- Room temp cure with optional heat acceleration
- Cures to soft, low stress elastomer
- UL 746 and Mil Spec tested
- IPC-CC-830
- UV indicator for inspection
- No added solvents
- No mixing required
- RT cure, no ovens required
- Faster in-line processing with optional heat acceleration
- Able to flow, fill or self-leveling after dispensing
- UV indicator allows for automated inspection
- Good adhesion allows use with many low-solids (no clean) and no-lead solders
- Can be considered for uses with UL, IPC or Mil Spec requirements

Composition

- 1-part, translucent
- Polydimethylsiloxane coating

Application Methods

- Brush
- Flow Coating
- Syringe or needle

Applications

- Pin/solder joint coverage
- Thin section encapsulation
- Spot protection of pins or other devices

Form No. 11-1867-01 B

Typical Properties

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

Property	Unit	Result
Viscosity	cP mPa-sec Pa-sec	63775 63775 63.8
Specific Gravity (Cured)		1.03
Tack-Free Time at 25°C	minutes	14
Durometer Shore A		36
Tack-Free Time at 60°C/15% RH	minutes	0.5
Tensile Strength	psi MPa kg/cm^2	325 2.2 22
Elongation	%	145
Youngs Modulus	psi MPa kg/cm^2	223 1.54 15.4
Unprimed Adhesion - 180 Degree	ppi	5
Peel Strength	N/cm	3
Dielectric Strength	volts/mil kV/mm	525 21
Volume Resistivity	ohm*cm	1.6 E15
Shelf Life at 25°C	months	12
UL Flammability Classification	NA	94 V-0
Mil Specification	NA	Mil I-46058C Amend 7
Agency Listing		IPC-CC-830B, UL 746E

Description

Solventless RTV elastomeric conformal coatings such as DOWSIL™ 3-1944 RTV Coating require atmospheric moisture to cure needing no expensive ovens, and various viscosity version faciliate different application methods.This family of coatings is rapidly gaining popularity due to its environmentally friendly and solventless formulations, its rapid cure rates that can be dramatically accelerated by mild heat, and its cost effectiveness. These elastomers, when cured, offer the optimum stress relief for even the most delicate components and interconnections in a variety of service environments. This product line also features coatings manufactured for controlled volatility and many of these products are UL recognized. Conformal coatings are materials applied in thin layers (typically a few mils or microns) onto printed circuits or other substrates. They provide proven, cost effective environmental and mechanical protection to significantly extend the life of the components and circuitry. Underwriters Laboratory (UL) 746E recognition is based on thickness and substrate requirements. Please consult the UL Online Certifications Directory for the most accurate certification information.

Processing/ Curing

Time to cure is dependent on several variables including the method of application, film thickness, temperature and humidity. Tack-free time in the data table gives an indication of typical times until surface is dry enough to handle. Cure time for full cure are indications of time needed to develop full physical properties such as durometer, tensile strength or adhesion. These times, including full cure time, can be significantly improved by introducing mild heat of 60°C or less.

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 72 hours to build in some coatings. Dow conformal coatings are formulated to provide adhesion to most common substrates and materials. On certain difficult, low-surface energy surfaces, adhesion may be improved by priming or by special surface treatment such as chemical or plasma etching.

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. Shelf life is indicated by the “Use Before” date found on the product label.

Useful Temperature Ranges

For most uses, silicone elastomers 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 conformal coatings offer excellent repairability 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. 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.

Packaging Information

In general, Dow conformal coatings are supplied in nominal 0.45, 3.6, 18.1 and 200 kg (1, 8, 40 and 440 lb) containers, net weight. Not all coatings may be available in all packages and some additional packages, such as bladder packs or tubes, may be available for certain coatings and package sizes.

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.

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.

Limitations

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

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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