



Technical Data Sheet

DOWSIL™ HC 2000 UV Coating

One-part, translucent, fast, tack-free, flowable conformal coating with controlled volatility

Features & Benefits

- Fast, tack-free RT cure
- Flowable
- No added solvents
- Cures to soft, low stress elastomer
- Controlled silicone volatility
- UV indicator allows for automated inspection
- Room temperature cure, no ovens required
- Mild heat acceleration can speed in-line processing
- Good adhesion allows use with many low-solids (no clean) and no-lead solders
- Soft coating can improve reliability against stress

Applications

DOWSIL™ HC 2000 UV Coating potential uses include:

- Rigid and flexible circuit boards
- Connectors
- Sensors
- Sensitive components
- Relays and high tolerance devices (HDD, DVD, CD)

Typical Properties

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

Property	Unit	Result
Viscosity	cP	139
	mPa-sec	139
Density (Cured)	g/cm ³	1.01
Tack-Free Time at 25°C	minutes	15
Content of Low Molecular Siloxane (D4–D10)	ppm	13
Dielectric Strength (JIS K 6249)	kV/mm	33
Volume Resistivity (JIS K 6249)	ohm*cm	7.1E+15
Dielectric Constant @ 1 MHz (JIS K 6249)		2.9
Dissipation Factor @ 1 MHz (JIS K 6249)		0.004

Description

Solventless RTV elastomeric conformal coatings require atmospheric moisture to cure needing no expensive ovens, and various viscosity version facilitate different application methods. This family of coatings is rapidly gaining popularity due to its 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 PCB systems assembly substrates. They provide proven, cost effective protection from harsh environmental conditions to significantly extend the life of the components and circuitry.

Application Methods

- Spray
- Brush
- Flow
- Some automated pattern coating
- May be dip coated with special precautions

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 RTV conformal coatings are formulated to provide adhesion to most common PCB systems assembly 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.

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 devices, it is often desirable to salvage or reclaim damaged or defective units. Dow RTV 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.

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

Packaging Information

In general, Dow RTV conformal coatings are supplied in nominal 0.45-, 3.6-, 18- 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.

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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