Technical Data Sheet

DOWSIL™ SE 9186 L Sealant

FEATURES & BENEFITS

- Fast, tack-free surface at room temperature
- Flowable
- Cures to soft, low stress elastomer
- Controlled silicone volatility
- No added solvents
- Room temperature cure, no ovens required
- Mild heat can accelerate cure and speed in-line processing
- Soft coating can improve reliability against stress

COMPOSITION

- Polydimethylsiloxane

One-part, translucent or black, fast tack-free flowable conformal coating/adhesive with controlled volatility

APPLICATIONS

DOWSIL™ SE 9186 L Sealant is used for:

- Rigid and flexible circuit boards
- Spot protection on components

TYPICAL PROPERTIES

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

Property	Unit	Result
One or Two Part		One
Color		Translucent and Black
Viscosity	cP Pa-sec	27000 27
Specific Gravity (Cured)		1.02
Low Molecular Weight Siloxanes (D4-D10) Clear Version / Black Version	ppm	23 / 29
Low Molecular Weight Siloxanes (D4-D20) Clear Version / Black Version	ppm	169 / 233
Tack-Free Time at 25°C	minutes	8
Cure Time (20°C/55% RH/1 mm)	hours	5
Durometer Shore A		25
Tensile Strength	MPa	1.6
Elongation	%	340
Adhesive Strength (Glass)	N/cm²	92
Dielectric Strength	Volts/mil kV/mm	575 23
Volume Resistivity	Ohm.cm	6.0E+15
Dielectric Constant at 1 MHz		2.7
Dissipation Factor at 1 MHz		0.001

DESCRIPTION

Solventless RTV elastomeric conformal coatings require atmospheric moisture to cure needing no expensive ovens, and various viscosity versions facilitate different application methods. This family of coatings is rapidly gaining popularity because there are no added solvents, its rapid cure rates 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 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.

APPLICATION METHODS

- Syringe
- Brush
- Flow coating

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 ambient 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 conformal coatings are formulated to provide adhesion to most common 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.

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.

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 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. 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.

PACKAGING INFORMATION

Multiple packaging sizes are available for this product.

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT.

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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.

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Form No. 11-3276-01 C