Technical Data Sheet

DOWSIL™ SE 9188 RTV Adhesive

FEATURES & BENEFITS

- Fast tack free room temperature cure
- Non-flowing
- Controlled silicone volatility
- UL 94 V-0 flammability rating
- No mixing required
- Room temperature cure, no ovens required
- Faster in-line processing at room temperature with option for mild heat acceleration
- Can be considered for uses requiring added flame resistance

COMPOSITION

- 1-part, gray
- Polydimethylsiloxane

One-part, gray, non-flowing adhesive, fast tack free with controlled volatility and good flame resistance

APPLICATIONS

DOWSIL™ SE 9188 RTV Adhesive is suitable for:

- Part fixing on circuit boards
- Vibration dampening
- Sealing applications

TYPICAL PROPERTIES

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

Property	Unit	Result
One part or Two part		One
Color		Gray
Specific Gravity (Cured)		1.29
Tack-Free Time at 25°C	minutes	10
Tensile Strength	psi MPa kg/cm^2	420 2.9 29
Elongation	%	400
Durometer Shore A		34
Dielectric Strength	volts/mil kV/mm	750 30
Volume Resistivity	ohm*cm	1.0E+15
Dielectric Constant at 1 MHz		3.4
Dissipation Factor at 1 MHz		0.003
Content of Low Molecular Siloxane (D4-D10)	ppm	30
Content of Low Molecular Siloxane (D4-D20)	ppm	220
UL Flammability Classification	NA	94 V-0

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 silicone adhesives retain their original physical and electrical properties over a broad range of operating conditions which enhance the reliability of and service life of PCB system assemblies. The stable chemistry and versatile processing options of these adhesives offer benefits for a variety of needs from increasing component safety and reliability, reducing total cost or increasing the performance envelope of devices or modules.

APPLICATION METHODS

- Automated and manual needle dispense systems

PACKAGING INFORMATION

Multiple packaging sizes are available for this product.

USABLE LIFE AND STORAGE

For best results, Dow RTV 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 silicone 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

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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.

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 WWW.CONSUMER.DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

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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