



Technical Data Sheet

DOWSIL™ EA-3800 Adhesive

FEATURES & BENEFITS

- Room temperature (RT) cure, no ovens required
- Solventless
- UL 94 V-0 flammability classification
- No mixing required

COMPOSITION

- Polydimethylsiloxane

One-part, white, moisture cure adhesive

APPLICATIONS

DOWSIL™ EA-3800 Adhesive is suitable for use in the following:

- Battery charger gap filling
- Protection of devices

TYPICAL PROPERTIES

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

Property	Unit	Result
One or Two Parts	-	One
Color	-	White
Viscosity*	cp	26000
Specific Gravity (Cured)	-	1.76
Tack-Free Time at 25°C	minutes	5
Tensile Strength	psi	400
Elongation	%	34
Durometer Shore A	-	86
Unprimed Adhesion - Lap Shear to Aluminum [7 Day]	psi	80
Dielectric Strength	kV/mm	22.8
Volume Resistivity	ohm*cm	2.38x10 ¹⁵
Dielectric Constant at 100 Hz	-	6.82
Dielectric Constant at 100 kHz	-	5.5
Dissipation Factor at 100 Hz	-	0.0044
Dissipation Factor at 100 kHz	-	0.0113
Thermal Conductivity	W/mK	1.1
UL Flammability Classification	NA	94 V-0

*Viscosity at fresh state. Viscosity value can be varied during storage at room temperature condition. For more stable and consistent viscosity, storage at low temperature (< 5 degrees C) is recommended.

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 is achieved however 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 throughput 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.

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.

POT LIFE AND CURE RATE

The pot life of Dow silicone adhesives 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

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.

USABLE LIFE AND STORAGE

Special precautions must be taken to prevent moisture from contacting Dow silicone adhesives. 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. To keep stable viscosity, it is better to store product at less than 5°C.

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.

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. 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.

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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.

For further information, please see our website, www.consumer.dow.com or consult your local Dow representative.

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