Product Information
Solar
Solutions

DOW CORNING

Dow Corning® PV-5802 Electrically Conductive Adhesive

FEATURES & BENEFITS

- Low CTM (cell-to-module) power loss
- Flexible and low modulus material reducing local stress on contact points during thermal cycles
- Superior stability and durability under high UV and low/high temperature environment
- Low material consumption
- Qualified in accordance with IEC61215

COMPOSITION

- Polydimethylsiloxane
- Conductive filler

High performance and reliability electrically conductive adhesive for back contact PV module assembly

APPLICATIONS

- Electrical and mechanical bonding between cells and conductive backsheet for back contact PV module
- Designed for automatic, high throughput and high yield back contact module assembling process using stencil printing
- Curing profile matches typical lamination recipes of PV module

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Test[1]	Property	Unit	Result
CTM 1094C	Viscosity (10/s)	Pa.s	95
CTM 1094M	Thixotropy Index , $2s^{-1}/10s^{-1}$		2.7
CTM 0313B	Bulk Resistivity	Ohm•cm	1.82×10^{-4}
CTM 1059C	Cure conditions	min @150°C	10
CTM 1134	Flexibility	Pa	$G'<2 \times 10^{7}$

[1]CTM: Corporate Test Method, copies of CTMs are available on request.

DESCRIPTION

Dow Corning® PV-5802 Electrically Conductive Adhesive is a one-part, electrically conductive, heat curable material.

HOW TO USE

Dow Corning PV-5802 Adhesive is suitable for stencil printing. Please consult Dow Corning representative for dispensing application.

Working Time

The working time (Pot-Life[1]) is longer than 72 hours at room temperature. Initially, cure is evidenced by a gradual increase in viscosity, followed by gelation and conversion to a solid elastomer.

[1]Pot-life in this application is defined as the time it takes for a materials viscosity to double.

Processing and Curing

Dow Corning PV-5802 Conductive Adhesive cures most efficiently at temperatures above 125°C. A cure schedule of 150°C for 10 minutes is sufficient to completely cure the adhesive. The data is believed to be typical and should be used as initial estimates of cure times. Times will vary slightly from batch to batch and can be longer or shorter due to thermal mass of your parts and your heating ramp rate. Pretesting is recommended to confirm adequate cure for your application.

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, 100 percent cohesive failure of the adhesive in a lap shear or other adhesion tests is desirable. This ensures 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 or protective films.

USEFUL TEMPERATURE RANGES

For most uses, *Dow Corning* PV-5802 Conductive Adhesive should be operational over the typical solar ranges of -45 to 85°C (-49 to 185°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 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 adhesive is time-and temperature dependent.

COMPATIBILITY

Certain materials, chemicals, curing agents, and plasticizers can inhibit the cure of *Dow Corning* PV-5802 Conductive Adhesive. Most notable of these include:

- Organotin and other organometallic compounds Silicone rubber containing organotin catalyst
- Sulfur, polysulfides, polysulfones, or other sulfur-containing materials Amines, urethanes, or Amine-containing materials
- Unsaturated hydrocarbon plasticizers Some solder flux residues

If a substrate or material is questionable with respect to potentially causing inhibition of cure, it is recommended that a small-scale compatibility test be run to ascertain suitability in a given application. The presence of liquid or uncured product at the interface between the questionable substrate and the cured gel indicates incompatibility and inhibition of cure.

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE DOW CORNING WEBSITE AT DOWCORNING.COM, OR FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.

USABLE LIFE AND STORAGE

Dow Corning PV-5802 Conductive Adhesive has a shelf life of 12 months from date of manufacture if stored at -20°C +/- 5°C. Shelf life is indicated by the "Use By" date found on the product label.

Storage and Handling

Transportation typically takes 2–4 days and is shipped using blue ice with a temperature recorder. The recorder should not exceed 10°C at any time during the shipment and should be stored at the recommended condition, -20°C +/- 5°C, immediately upon arrival. Repeated freezing and thawing should be avoided. Special precautions must be taken to prevent moisture from contacting these materials. Containers should be kept tightly closed and head or air space minimized. Any special storage and handling instructions will be printed on the product containers.

To prepare material for use: please follow the two preceding steps in order.

- Step one: Allow the container to sit at least one hour at room temperature.
- Step two: Stir well before application.

PACKAGING INFORMATION

Dow Corning PV-5802 is supplied with 1.5 kg in dental cups or 300 g can. Detailed container size information may be obtained from your Dow Corning representative.

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 Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our website, dowcorning.com or consult your local Dow Corning representative.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

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Dow Corning's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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