

# Product Information

## Solar

# Dow Corning® PV-7010 Potting Agent

## FEATURES

- Proven solution in PV industry
- Compatible with automated dispensing equipment
- Fast room temperature or heat cure
- Minimal shrinkage
- No solvents or cure byproducts
- Thick section cure
- Translucent material
- UL 94 V1
- UL HAI/HWI/CTI = 0
- UL RTI 105°C (221°F)

## COMPOSITION

- Two-part silicone elastomer supplied as flowable liquid
- 1:1 mix ratio by weight or volume

**Silicone potting material for junction box components providing environmental protection and thermal management**

## APPLICATIONS

- Potting of solar module junction boxes.

## 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 contact before writing specifications on this product.

Test	Unit	Result
Color		Translucent green
Viscosity Part A	centipoise or mPa s	425
Viscosity Part B	centipoise or mPa s	400
Durometer Shore OO <sup>1</sup>		59
Specific Gravity <sup>2</sup>		0.98
Working Time <sup>3</sup>	minutes	10
Thermal Conductivity	watts/meter-°K	0.20
Room Temperature Cure Time <sup>4</sup>	minutes	15/90
Heat Cure Time <sup>5</sup>	minutes	10 @ 50°C, 5 @ 75°C, 3 @ 100°C <sup>5</sup>
Dielectric Strength	volts/mil	425
	kV/mm	17
Linear Coefficient of Thermal Expansion	µm/(m·°C)	324

<sup>1</sup>Measured by durometer

<sup>2</sup>Cured or uncured A & B.

<sup>3</sup>Time to double initial viscosity (initial mixed viscosity for two-part products) at room temperature. This property is sometimes referred to as pot life.

<sup>4</sup>Time to non-flow/cure.

<sup>5</sup>Time to cure material to 90% of final properties; additional time may be required for a part to warm to oven temperature. Time to adhesion may take longer.

<sup>6</sup>

## DESCRIPTION

*Dow Corning* PV-7010 Potting Agent is supplied as two-part liquid component kits comprised of Part A/Part B to be mixed in a 1:1 ratio by weight or volume. It is suitable for manual mixing or automated mixing and dispensing. When liquid components are thoroughly mixed, the mixture cures to a flexible elastomer.

one of the available types of meter mix equipment. Typically, the two components are of matched viscosities and are readily mixed with static or dynamic mixers, with automated meter-mix normally used for high-volume processes. For low-volume applications, manual weighing and simple hand mixing may be appropriate.

## HOW TO USE

### Mixing Two-Part Gels

*Dow Corning* PV-7010 Potting Agent can be dispensed manually or by using

Inaccurate proportioning or inadequate mixing may cause localized or widespread problems affecting the gel properties or cure characteristics. If

possible, the potential for entrapment and incorporation of gas (typically air) should be considered during design of the part and selection of a process to mix and dispense the gel. Degassing at >28 inches (10-20 mm) Hg vacuum may be necessary to ensure a void-free protective layer.

### **Working Time and Cure**

Working time (or pot life) is the time required for the initial mixed viscosity to double at room temperature (RT). For two-part, addition-cure products, such as *Dow Corning* PV-7010 Potting Agent, the cure reaction begins when Parts A and B are mixed. As the cure progresses, viscosity increases until the material becomes a soft gel. Cure conditions are shown in the typical properties table. Cure is defined as the time required for a specific gel to reach 90% of its final properties. Gels will reach a no-flow state prior to full cure. *Dow Corning* PV-7010 Potting Agent can be cured at room temperature or via heat-accelerated cure.

*Dow Corning* PV-7010 Potting Agent does not require heat to develop adhesion. Cure schedules should be verified in each new application.

### **USEFUL TEMPERATURE RANGES**

For most uses, *Dow Corning* PV-7010 Potting Agent should be operational over a temperature range of -45 to 150°C (-49 to 302°F) for long periods. However, at both the low and high ends of the temperature range, 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 specific parts and 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, durability of cured silicone gels is time and temperature dependent. As expected,

the higher the temperature, the shorter the time the material will remain usable.

### **REPAIRABILITY**

In the manufacture of electronic devices, salvage or rework of damaged or defective units is often required. Removal of *Dow Corning* PV-7010 Potting Agent to allow necessary repairs can be assisted by using *Dow Corning*® OS Fluids. In addition, if only one component needs to be replaced, a soldering iron may be applied directly through the gel to remove the component. After work has been completed, the repaired area should be cleaned with forced air or a brush, dried, and patched with additional silicone gel.

### **CURE COMPATIBILITY**

Certain materials, chemicals, curing agents and plasticizers can inhibit the cure of *Dow Corning* PV-7010 Potting Agent. 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
- Phosphorous or phosphorous-containing materials
- Unsaturated hydrocarbon plasticizers
- Acidic materials (usually organic acids)
- Some solder flux residues

If a substrate or material is questionable with respect to potentially causing inhibition of cure, a small-scale compatibility test should 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. In certain situations, toughened gels may appear fully cured but have reduced or no adhesion. This may result from slight inhibition at the interface.

### **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 WWW.DOWCORNING.COM, OR FROM YOUR DOW CORNING REPRESENTATIVE, OR DISTRIBUTOR, OR BY CALLING YOUR GLOBAL DOW CORNING CONNECTION.

### **USABLE LIFE AND STORAGE**

When stored at or below 25°C (77°F) in the original unopened containers, *Dow Corning* PV-7010 Potting Agent has a usable life of 12 months from the date of manufacture.

Storage conditions and shelf life (“Use By” date) are indicated on the product label.

### **PACKAGING**

*Dow Corning* PV-7010 Potting Agent is available in batch-matched kits containing both Part A and Part B components and is available in standard cartridge, pail and drum packaging. Detailed container size information may be obtained from your *Dow Corning* representative.

### **LIMITATIONS**

Under certain conditions in specific designs or applications, *Dow Corning* PV-7010 Potting Agent may lose adhesion. Full environmental exposure testing is recommended.

Use of this product must be based on the results of your product testing, manufacturing processes, and end applications. Full environmental exposure testing is recommended for all applications.

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, [www.dowcorning.com](http://www.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 Dow Corning's 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.

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

Your exclusive remedy for breach of such warranty is limited to refund of

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