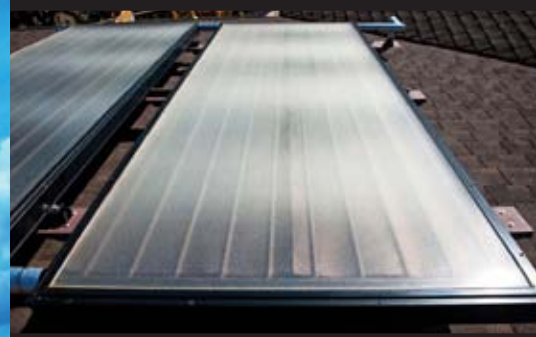
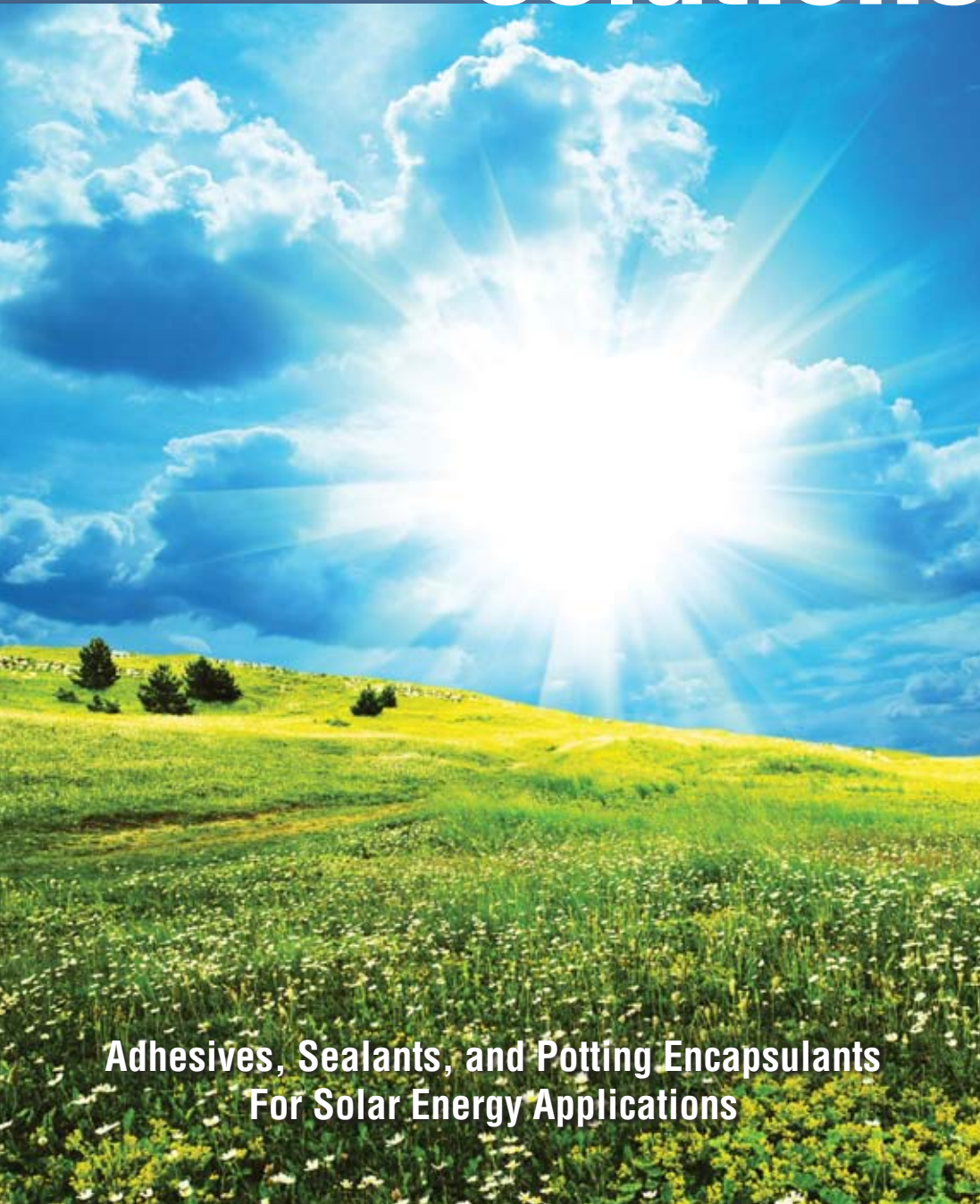


# SOLAR ENERGY solutions



**Adhesives, Sealants, and Potting Encapsulants  
For Solar Energy Applications**

- MICRO-INVERTERS
- CHARGE CONTROLLERS
- J-BOX POTTING
- BATTERIES
- BONDING / SEALING

## ***EPIC RESINS***

### ***QUALITY SOLUTIONS FOR YOUR SOLAR DEVICE APPLICATIONS***

Epic Resins specializes in formulating adhesives, potting and encapsulating products. Since 1958 we have continuously enhanced our world class reputation for innovation, cost-effective, and customer-focused product development, large batch consistency, ISO certified quality and superior technical support.

Our goal is to advantage our customers to excel in their market applications and manufacturing processes.

Epic is an integral supplier to a broad base of diverse markets. We have over 50 plus years of technical, manufacturing and service experience in the products and processes that are vital to the Solar Energy Device Market.



## **EPIC SolarSet® LINE OF MATERIALS**

Epic SolarSet® line of materials offers a complete range of bonding, potting and encapsulating, and adhesive products for solar energy applications. Epic SolarSet® products are designed for optimal thermal management critical in solar applications. Epic Resins also offers low cost alternative chemistries that can replace expensive silicones for potting, adhesive and sealing requirements. Below are just a few examples of the quality products Epic Resins produces for various solar applications.

### **EPIC SolarSet® SERIES: BALANCE OF SYSTEM POTTING AND ENCAPSULATING**

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#### **EPIC SolarSet® S7202 SERIES**

Epic SolarSet® S7202 series are two component polyurethane encapsulating compounds for electronic potting applications. This material works very well for micro-inverters, charge controllers, power optimizers, and solid state inverters. Due to the relatively low durometer, the S7202 series of products are excellent choices for applications which are subject to extreme temperature cycles, handling temperatures ranging from -50C to 130C. These products combine high thermal conductivity with a viscosity which allows the material to flow into tight tolerance locations. These products adhere well to a wide variety of case materials, and are UL 94V-0 recognized. Epic SolarSet® S7202 series meet RoHS standards.

#### **EPIC SolarSet® S7142-01**

Epic SolarSet® S7142-01 is a two component polyurethane potting compound that is suitable for micro-inverter and charge controller potting. S7142-01 is recognized by UL as a 94V-0 product in thicknesses as thin as 2.9mm. S7142-01 has also been designed for good thermal shock and hydrolytic stability and has the option of being cured at ambient or elevated temperatures to facilitate high volume/speed production. The Epic SolarSet® S7142-01 material is RoHS compliant.

#### **EPIC SolarSet® S7475**

Epic SolarSet® S7475 is a two component polyurethane compound for potting micro-inverters as well as many other solar control modules. The low mixed viscosity of the S7475 allows the material to flow into intricate places under printed circuit boards and other tight tolerance areas in a wide variety of electronic devices. Another key property of this product is the 4:1 by volume mix ratio that makes the system very adaptable to meter mix and dispense applications. Offering a hardness of Shore OO = 50-65, the Epic SolarSet® S7475 provides excellent flexibility, therefore allowing delicate surface mounted devices (SMD's) to expand and contract during thermal shocks and thermal cycling. For applications that generate a great deal of heat, S7475 has shown extremely low weight loss at 130C - 0.24% after 168 hours. S7475 is UL 94V-0 recognized at 4.8 mm and is RoHS compliant.

#### **EPIC SolarSet® S7458**

Epic SolarSet® S7458 is a two component polyurethane potting compound that is used to pot and encapsulate charge controllers. S7458 was formulated as a cost effective potting compound for applica-

tions requiring a low Tg, thermal cycling resistance, convenient 4:1 volumetric mix ratio, low weight loss at 130C. Epic SolarSet® S7458 is designed to pass UL 94V-0 at 1/4 inch.

#### **EPIC SolarSet® S7351**

SolarSet® S7351 material is a very popular electronic potting compound and would work very well with charge controllers as well as power optimizers. S7351 is a two component, room temperature cure, polybutadiene based polyurethane. Due to its low hardness and flexibility, the Epic SolarSet® S7351 will not exert stress on delicate surface mounted devices (SMD's) on printed circuit boards (PCB's) when exposed to extreme thermal cycling typical of outdoor electronics applications. S7351 provides excellent high temperature properties up to 125C and much improved chemical resistance as well as a fast gel time. Epic SolarSet® S7351 is a RoHS approved material.

#### **EPIC SolarSet® S7188-02**

Epic SolarSet® S7188-02 is a two component epoxy resin potting compound for the encapsulation of charge controllers. S7188-02 features a low viscosity for complete air release, a convenient 3:1 by volume mix ratio, and very low shrinkage upon cure. Epic SolarSet® S7188-02 is UL 94V-0 recognized at 5.7 mm.

#### **EPIC SolarSet® R1074-06/H4030-02**

Epic SolarSet® R1074-06/H4030-02 is an excellent choice for potting charge controllers and J-Boxes. R1074-06/H4030-02 is a premium fire retardant epoxy potting compound recognized UL94 V-0. Epic SolarSet® R1074-06/H4030-02 could be considered for use in applications that are thermal cycled between -40C and +85C without issue, this material also features a long work life and convenient 1:1 mix ratio. Epic SolarSet® R1074-06/H4030-02 is RoHS compliant.

#### **EPIC SolarSet® R1055/H5083**

Epic SolarSet® R1055/H5083 is a perfect resin system for J-Box potting. R1055/H5083 is a modified epoxy system that cures at ambient temperatures thereby affording the user the opportunity to reduce substantial energy costs normally associated with heat curing systems. When fully cured, Epic SolarSet® R1055/H5083 features a combination of good physical and electrical properties that particularly qualify the compound for potting high voltage power supply sources with hot spot temperatures of up to 140C while boasting an electrical RTI rating of 180C. R1055/H5083 is UL 94HB recognized down to 1.55 mm and meets all RoHS requirements.

## **EPIC SolarSet® S7253 SERIES**

Epic SolarSet® S7253 series of products are two component, UL 94V-0 recognized polyurethane compounds used to pot and encapsulate components in inverters as well as batteries and charge controllers. The low weight loss of the S7253 series at elevated temperature suggests that this product is suitable for applications that can reach up to 125C. The S7253 series is currently utilized in a variety of applications that require thermal cycling between -40C and 85C. The S7253 series of products feature good thermal conductivity along with good adhesion to various metals and plastics. The Epic SolarSet® S7253 series of products meets RoHS requirements.

## **EPIC SolarSet® S7302**

Epic SolarSet® S7302 is a tough urethane material that performs well in many different Balance of Systems applications, including adhesion and sealing of batteries. The chemistry of S7302 makes this material well suited for products that are exposed to a wide range of temperatures. Epic SolarSet® S7302 is adequate for applications that are thermal cycled between -40C and 135C with excursions up to 160C. S7302 has been field proven for moisture resistance and has displayed excellent adhesion to various metals and plastics. S7302 is RoHS compliant.

## **EPIC SolarSet® S7457**

Epic SolarSet® S7457 is two component polyurethane that is ideal for the potting Balance of System components. Epic S7457 is an excellent choice for applications which are subject to extreme temperature cycles, handling temperatures ranging from -50C to 130C. Epic S7457 combines high thermal conductivity with a viscosity which allows the material to flow into tight tolerance locations. Epic S7457 adheres well to a wide variety of case materials, ranging from ABS to aluminum, including anodized aluminum. Epic SolarSet® S7457 is designed to pass UL 94V-0, as well as meet RoHS requirements.

## **EPIC SolarSet® SERIES: PV MODULE ADHESIVES AND SEALANTS**

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## **EPIC SolarSet® S7023**

Epic SolarSet® S7023 is a two component, electrically conductive, silver-filled epoxy adhesive. S7023 helps maintain electrical continuity to your PV Module's Bus bar. S7023 has been designed for applications where electrical conductivity along with superior bond strength is important design criteria. S7023 has a process friendly 1:1 by weight or volume mix ratio, a 2 hour pot life and is a room temperature curing system that can be accelerated with heat. Epic SolarSet® S7023 material meets all the RoHS requirements.

## **EPIC SolarSet® S7482 SERIES**

EPIC S7482 is a two component urethane adhesive designed for adhering junction box panels to photovoltaic films used on solar panel assemblies. The S7482 has a process friendly easy and convenient 1:1 mix ratio. S7482 will hold a 1/4" vertical bead and gel in 5 - 10 minutes for fast throughput applications to optimize your manufacturing process. Epic SolarSet S7482 is a flexible adhesive allowing it to absorb stresses that would normally crack on a more rigid material. The S7482 is a great cost effective replacement material for silicones or tape for attaching your junction box. The Epic SolarSet S7482 is RoHS compliant.

## **EPIC SolarSet® S7469 SERIES**

Epic SolarSet® S7469 series of materials are two component urethane adhesives designed to provide superior adhesion to a variety of thermoplastic and metal substrates. The S7469 series was designed with a fast gel/cure time and a convenient 1:1 by volume mix ratio. The gel time of this series is adjustable to fit the needs of your manufacturing facility. Epic S7469 series can be used both as a frame seal and as an adhesive for J-boxes. Epic SolarSet® S7469 series of materials are RoHS approved.

## **EPIC SolarSet® RM2005**

Epic SolarSet® RM2005 is a single component derivatized moisture cure urethane adhesive used for frame sealing. Epic RM2005 cures with moisture similar to other urethane moisture cures, but does not contain any isocyanate. As such it is more environmentally friendly and does not produce foaming on reaction with excess moisture.

## **EPIC SolarSet® D9960**

Epic SolarSet® D9960 is a two component aliphatic polyurethane compound with a convenient 1:1 volumetric mix ratio. Epic D9960 is designed to have a Shore A durometer in the mid 30 range to allow for use as a gasketing material. Being an aliphatic polyurethane, Epic D9960 has exceptional UV resistance. Epic SolarSet® D9960 adheres to all RoHS requirements.

## **EPIC SolarSet® D9940**

Epic SolarSet® D9940 is a two component aliphatic polyurethane which is suitable for use on exterior components. D9940 has been independently tested against a series of automotive specifications indicating its excellent resistance to UV degradation. The 1:1 volumetric ratio makes D9940 conducive to many types of meter mix equipment while the low mixed viscosity allows for the material to self level. D9940 has been tested and meets RoHS requirements.

## EPIC RESINS

### ADHESIVE, POTTING, AND ENCAPSULATING PRODUCTS FOR SOLAR ENERGY APPLICATIONS SELECTION CHART

Product	UL Recognized	RoHS Compliant	Mix Ratio by Weight	Mix Ratio by Volume	Viscosity @ 25C (in cps)	Gel Time @ 25C	Specific Gravity	Shore Hardness @ 25C
S7202 Series	Yes	Yes	8A:100B	9.3A:100B	15,000 - 20,000	100 - 140 Minutes (108 Gram Mass)	1.42 - 1.45	77 - 83 Shore A
S7142-01	Yes	Yes	100A:18B	4A:1B	8,000 - 12,000	13 - 18 Minutes (236 Gram Mass)	1.62 - 1.68	77 - 83 Shore A
S7475	Yes	Yes	100A:17B	4A:1B	1,000 - 2,000	40 - 45 Minutes (100 Gram Mass)	1.32 - 1.36	50 - 65 Shore OO
S7458	No <sup>1</sup>	No	100A:18.5B	4A:1B	<3,000	40 - 50 Minutes (100 Gram Mass)	1.36 - 1.40	80 - 90 Shore OO
S7351	No	Yes	100A:28.4B	4A:1B	700 - 1,000	8 - 14 Minutes (128 Gram Mass)	0.98 - 1.00	20 - 25 Shore A
S7188-02	Yes	No	100A:20B	3A:1B	3,000 - 4,700	45 - 60 Minutes (200 Gram Mass)	1.42 - 1.48	80 - 85 Shore D
R1055/H5083	Yes	Yes	100A:18B	3.25A:1B	2,000 - 3,000	2 - 3 Hours (200 Gram Mass)	1.45 - 1.50	83 - 87 Shore D
R1074-06/H4030-02	Yes	Yes	1A:1B	1A:1B	7,000 - 9,000	60 - 80 Minutes (100 Gram Mass)	1.47 - 1.54	78 - 82 Shore D
S7253	Yes	Yes	100A:18.2B	100A:21.4B	1,600 - 2,000	20 - 30 Minutes (118.2 Gram Mass)	1.38 - 1.41	82 - 88 Shore A
S7302	No	Yes	100A:19.5B	4A:1B	2,500 - 3,500	45 - 55 Minutes (100 Gram Mass)	1.36 - 1.39	68 - 72 Shore A
S7457	No <sup>1</sup>	Yes	100A:16.6B	100A:20.4B	4,000 - 5,000	50 - 70 Minutes (117 Gram Mass)	1.48 - 1.52	85 - 90 Shore A
S7023	No	Yes	1A:1B	1A:1B	Paste	12 Hours Minimum (100 Gram Mass)	2.23 - 2.26	85 - 89 Shore D
S7482	No	Yes	100A:100B	1A:1B	20,000 - 30,000	5 - 10 Minutes (100 Gram Mass)	1.07 - 1.10	38 - 42 Shore A
S7469	No	Yes	100A:93.7B	1A:1B	Thixotropic Paste	60 - 80 Seconds (97 Gram Mass)	1.17 - 1.21	55 - 65 Shore D
RM2005	No	Yes	1 Comp	1 Comp	65,000 - 100,000	Adjustable	1.52 - 1.55	Flexible
D9960	No	Yes	100A:100.8B	1A:1B	150 - 250	28 - 33 Minutes (100 Gram Mass)	1.00 - 1.04	35 - 40 Shore A
D9940	No	Yes	100A:102.1B	1A:1B	400 - 500	20 - 30 Minutes (100 Gram Mass)	1.02 - 1.05	40 - 45 Shore D

(1) Product is designed to pass UL 94 V-0 requirements.

## EPIC EXPERTISE AND SERVICE

We invite you to share our experience and put Epic technology to work for you.

### UNPARALLELED "CUSTOM" SERVICE

- Application Analysis
- Field Proven Product Solutions
- Custom Formulation Expertise
- Process Development
- Equipment Selection Support

### WORLD CLASS MANUFACTURING

- State of the Art Production Equipment
- Consistent Product Quality
- Statistical Process Control
- ISO 9001 & ISO 14001 Management Systems
- On Time Delivery
- Large Batch Consistency

### TECHNICAL SUPPORT

- Continuous Research & Development Partnerships
- Experienced Chemists and Formulation Technicians
- Extensive Laboratory Test Equipment
- Process Development Expertise
- Technically Trained Local Sales Representatives
- Experienced Customer Support Staff

**PUT EPIC'S 50 YEARS OF TECHNICAL EXPERTISE TO WORK FOR YOU!**

## ***EPIC RESINS***

**600 INDUSTRIAL BLVD.**

**PALMYRA, WISCONSIN 53156**

**PH: 262-495-3400 FAX: 262-495-3410**

**OUTSIDE WISCONSIN: 1-800-242-6649**

**EMAIL: [SOLAR@EPICRESINS.COM](mailto:SOLAR@EPICRESINS.COM)**

**[WWW.EPICRESINS.COM](http://WWW.EPICRESINS.COM)**

ISO 9001 : 2000



CERTIFICATE NO. 02696

ISO 14001 : 2004



CERTIFICATE NO. 02696