

DOW CORNING®

3145 MIL-I-46146 ADHESIVE/SEALANT

FEATURES

* **HIGH TEAR STRENGTH**

* MIL-A-46146A and
MIL-R-47211

* **Excellent adhesion
to glass, ceramics,
metals, silicone
rubber and most
plastics**

* **Excellent thermal
stability from -55°C
to +250°C (higher for
grey version)**

* **Good dielectric
properties**

* **Easy to repair**

* **Resistant to harsh
environments**

* **Room temperature
cure**

* **NON-CORROSIVE CURE**

DESCRIPTION

Dow Corning® 3145 MIL-I-46146 Adhesive/Sealant is a one component, ready to use, non-slumping silicone available in clear or grey. This material reacts with moisture in the air to form a high strength, elastomeric solid. The non-corrosive cure mechanism produces no exothermic heat and, as a result, this product can be used on sensitive substrates and electrical/electronic equipment with no adverse effect.

Dow Corning 3145 Adhesive/Sealant is easy to handle, requires no mixing or heating and does not contain any solvents. It will not sag or run off and may be applied overhead or on sidewall joints and surfaces.

APPLICATIONS

Dow Corning 3145 MIL-I-46146 Adhesive/Sealant can be used for adhering corrosion-sensitive electronic components, and for general non-corrosive sealing and bonding of electronic sub-assemblies for use at extremes of high and low temperatures.

TYPICAL PROPERTIES

Test method

As Supplied, at 25°C and 50% relative humidity

	Colour	Grey/clear
	Consistency	Non-slumping
ASTM D2452	Extrusion Rate, 3 mm orifice at 0.6 MPa, grams per minute	120
	Skin-over Time, minutes	25
	Tack-free Time, hours	1.5
	Cure Time, 0.5 mm thickness, hours	24
	3 mm thickness, hours	72
	Full Cure, 3 mm thickness, days	7
ASTM D792	Non-volatile Content, %	98
	Relative Density at 25°C	1.12

Physical Properties, after 7 days at 25°C and 50% relative humidity

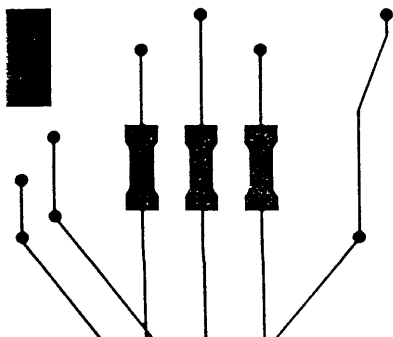
ASTM D2240	Durometer Hardness, Shore A	50
ASTM D412	Tensile Strength, MPa	7.0
ASTM D412	Elongation, %	675
ASTM D624	Tear Strength, die B, kN/m	33
ASTM D403	Peel Strength, primed aluminium panel, kN/m	19
	Coefficient of Volume Expansion (25°C to 100°C), 1/K	7.8×10^{-4}
	Thermal Conductivity (25°C to 100°C), W/(m.K)	0.17

Electrical Properties, after 7 days at 25°C and 50% relative humidity

ASTM D495	Arc Resistance, seconds	50
ASTM D149	Electric Strength, kV/mm	21
ASTM D150	Permittivity at 25°C	
	100 Hz	2.81
	100 kHz	2.78
ASTM D150	Dissipation Factor at 25°C	
	100 Hz	0.0015
	100 kHz	0.0028
ASTM D257	Volume Resistivity, ohm.cm	5.0×10^{14}

These values are not intended for use in preparing specifications.

Specification Writers: Please contact Dow Corning Europe, La Hulpe, Belgium, prior to writing specifications on this product.



HOW TO USE

Substrate Preparation

Dow Corning 3145 MIL-I-46146 Adhesive/Sealant forms a bond to most clean, dry surfaces of metals, glass, silicone or organic resins and vulcanised silicone rubber. A satisfactory bond will usually be formed without using a primer on degreased surfaces. However, for maximum adhesion, the use of Dow Corning® 1204 Primer is recommended for preparing metal and plastic surfaces. For best results:

1. Clean the surface with a solvent such as isopropanol (see Handling Precautions) and a slightly abrasive pad or a coarse lint-free cloth.
2. Apply a thin coat (the thinner the coat, the better the adhesion) of Dow Corning 1204 Primer (see Handling Precautions) by dipping, brushing or spraying.
3. Allow primer to dry for about 1 hour, at room temperature and a relative humidity of 50% or higher.
4. Silicone rubber surfaces should not normally be primed, but only roughened slightly with abrasive paper and rinsed with acetone.

How to Apply

Dow Corning 3145 Adhesive/Sealant has a paste-like consistency and can be applied directly from its collapsible tube or extruded from its cartridge. A plastic nozzle is supplied which may be cut to the desired orifice size and shape to facilitate application.

Apply Dow Corning 3145 Adhesive/Sealant to the prepared surface in a uniform thickness. If the Adhesive is to be used to bond two surfaces, apply it to one surface only and then assemble. When placing the second surface, use enough pressure to spread the Adhesive and displace any trapped air.

Best adhesion is obtained with an approximately 0.5 mm thick glue line. Metal to metal bonds should not overlap more than 25 mm. Let the unit stand undisturbed until the adhesive has cured sufficiently.

For information on appropriate dispensing equipment for your application, please contact Dow Corning.

Working and Cure Time

On exposure to moisture in the air, the surface of Dow Corning 3145 Adhesive/Sealant will "skin-over" in about 25 minutes at room temperature with 50% relative humidity. Any tooling should be completed before this "skin" forms. The Adhesive will be tack-free in less than 1.5 hours.

Curing continues inward from the surface. In 24 hours (at room temperature and 50% relative humidity), Dow Corning 3145 Adhesive/Sealant will cure to a depth of 0.5 mm. In 72 hours it will cure to a 3 mm thickness. Optimum physical and electrical properties are reached after curing for 7 days at room temperature. Deep sections take several weeks for a complete cure.

Cure time is extended at lower humidity levels. This effect becomes pronounced below 30% relative humidity. If both bonded substrates are impermeable to moisture, as in the case of two metal plates, cure time will depend upon the thickness of the Adhesive and the area under the joint. For best results, the bonded surfaces should not overlap by more than 25 mm.

HANDLING PRECAUTIONS

Dow Corning 1204 Primer is flammable. Keep away from heat and open flames. Use only with adequate ventilation. Avoid prolonged breathing of the vapour and prolonged or repeated skin contact.

In addition, when using solvents, avoid heat, sparks and open flames. Always provide adequate ventilation. Obtain and follow handling recommendations from solvent supplier.

Product Safety Data Sheets for Dow Corning 3145 MIL-I-46146 Adhesive/Sealant and Dow Corning 1204 Primer should be obtained from your nearest Dow Corning sales office prior to use.

ATTENTION: Before handling, read product information, product safety data sheets and container labels for safe use, and any physical and/or health hazard information.

USABLE LIFE AND STORAGE

When stored at or below 30°C in the original unopened containers, Dow Corning 3145 MIL-I-46146 Adhesive/Sealant will have a guaranteed usable life up to the date indicated on the packaging. This date is shown by the letters "EXP" (meaning Expiry) followed by 4 digits, which stand for the month (last day) and year. Example: "EXP 03/99" means use by 31 March 1999.

Since this product cures by reaction with moisture in the air, keep the container tightly sealed when not in use. A plug of used material may form in the tip of a tube or cartridge during storage. This is easily removed and does not affect the remaining contents.

PACKAGING

Dow Corning 3145 MIL-I-46146 Adhesive/Sealant is available in 90 ml tubes, 310 ml cartridges, and 20 litre containers.

HEALTH AND ENVIRONMENTAL INFORMATION

Dow Corning has a dedicated team of toxicologists as well as environmental and regulatory affairs specialists at its European headquarters in Brussels. This Health, Environment and Regulatory Affairs (HERA) Department is available to guide Dow Corning and support its customers in the safe manufacture, distribution, handling and use of its products. For further information on specific products, please contact this group at:

TEL: Int. +32+(0)2 655 25 23 or 655 21 11;

FAX: Int. +32+(0)2 655 20 13; or write to

Dow Corning Europe, HERA Dept.,

rue Général de Gaulle 62,

B-1310 La Hulpe, Belgium.

WARRANTY INFORMATION - PLEASE READ CAREFULLY

Dow Corning believes that the information in this publication is an accurate description of the typical characteristics and/or uses of the product or products, but it is your responsibility to thoroughly test the product in your specific application to determine its performance, efficacy and safety.

Unless Dow Corning provides you with a specific written warranty of fitness for a particular use, Dow Corning's sole warranty is that the product or products will meet Dow Corning's then current sales specifications. Dow Corning specifically disclaims any other express or implied warranty, including the warranties of merchantability and of fitness for use. Your exclusive remedy and Dow Corning's sole liability for breach of warranty is limited to refund of the purchase price or replacement of any product shown to be other than as warranted, and Dow Corning expressly disclaims any liability for incidental or consequential damages.

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