



## Hysol® EA 9257

### Adhesive Bonding Primer

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#### **Description**

Hysol EA 9257 is a water-borne adhesive bonding primer for 350°F/177°C service. It may be cured from 250-300°F (121-149°C) with optimum performance achieved with 270-280°F (132-138°C) cure. The data contained herein were obtained with Hysol EA 9657 .08 psf (390 g/m<sup>2</sup>) adhesive film. A more detailed processing data package is available upon request.

#### **Features**

##### **Improves Production Rates**

Excellent storage and outtime stability.

6 months @ 40°F/4°C. (Do not freeze)

30 days @ 77°F/25°C

10 days @ 90°F/32°C

Capable of applying up to 0.2 mil (0.005 mm) per box coat.

Slow settling rate - minimum agitation necessary during application.

Application and flash rates similar to solvent borne primers.

May be stored for 6 months after primer cure when protected.

Primer reactivation not required for second-stage bonding. (Surface preparation for rebondability is MEK wipe, light hand abrade [Scotch-Brite®] and MEK clean).

##### **Cost Effective**

20% solids reduces the required inventory space when compared to conventional 10% solids primers.

No special application equipment is required. Specifically developed for maximum transfer efficiency with high volume low pressure (HVLP).

Costs associated with permits and emissions will be reduced.

##### **Enhanced Health & Safety - Environmental Compliance**

Meets South Coast Air Quality Management District (SCAQMD) Rule 1124.

Flash point >200°F/93°C.

Low odor.

Easy equipment clean-up with water when primer is wet.

##### **High Performance**

350°F/177°C thermal aging stability.

Improved toughness helps prevent shop handling delaminations.

Corrosion inhibiting.

SPC/SQC being generated.

## Uncured Adhesive Properties

|                                  | <b><u>One Part</u></b> |
|----------------------------------|------------------------|
| Color                            | Green                  |
| Solids                           | 20%                    |
| Weight per gallon                | 8.7 lbs (1.044 kg/l)   |
| Warranty (from date of shipment) |                        |
| @ 40°F/4°C                       | 6 months               |
| @ 77°F/25°C                      | 1 months               |
| Volatile Organic Compounds (VOC) | <250 g/l**             |

\*\* SCAQMD Rule 1124 (less water)

## Handling

Store @ 40°F/4C. DO NOT FREEZE.

This product is a one-component primer which is used as received after warming to room temperature (77°F/25°C) and mixing well. Since the primer contains insoluble pigments, COMPLETE MIXING AND CONTINUOUS AGITATION IS REQUIRED! Observe all necessary precautions for the proper and safe use of primers.

## Application

**Applying** - Bonding surfaces should be clean, dry and properly prepared. For optimum surface preparation consult the Hysol Surface Preparation Guide. The primer should be sprayed after mixing well (15 minutes using shaker or 60 minutes using paint roller) using the following procedure. Hysol EA 9257 should be cured for 60 minutes @ 270°F/132°C detail temperature for optimum performance.

The following procedures were used in preparing laboratory test panels at 0.2-0.4 mils (0.005-0.010 mm) dried film thickness (DFT).

## ***Air Atomization***

|                         |   |
|-------------------------|---|
| Gun:                    | Devilbiss Model JGA-502<br>#30 Air Cap<br>AV-16-EX Fluid Tip<br>JVA 402 DEX Fluid Needle Valve  |
| Line Pressure:          | 100 psi (689 kPa)   |
| Pressure at Gun:        | 40-50 psi (276 to 345 kPa)  |
| Fan Pattern:            | Full Spray  |
| Volume Control:         | As necessary to apply 0.1-0.2 mils (0.003-0.005 mm) DFT per box coat.<br>Suggest starting at <sup>3</sup> / <sub>4</sub> turns from off position. |
| Distance to Panels:     | 8-12 inches (203 – 305 mm) at 45°   |
| Number of Coats:        | One box coat per 0.1-0.2 mils (0.003-0.005 mm) DFT  |
| Interval Between Coats: | 30-60 seconds   |
| Flash-Off Conditions:   | 30-60 minutes at ambient temperature  |

**HVLP (High Volume Low Pressure) Application**

System: Devilbiss HVLP System 89™  
Gun: Model JGHV-503  
#16 Air Cap  
JGHV-601FF Fluid Tip  
JGHV-404FF Fluid Needle Valve  
Line Pressure: 100 psi (689 kpa)  
Pressure at Gun: 10 psi (68.9 kpa)  
Fan Pattern: Full Spray  
Volume Control: As necessary to apply 0.1-0.2 mils (0.003-0.005 mm) DFT per box coat.  
Suggest starting at two full turns from off position.  
Distance to Panels: 8-12 inches (20-30 cm) at 45°  
Number of Coats: One box coat per 0.1-0.2 mils (0.0025-0.005 mm) DFT  
Interval Between Coats: 30-60 seconds  
Flash-Off Conditions: 30-60 minutes at ambient temperature

**Open Assembly Time** - Parts, which have been primed and cured, may be stored for up to 6 months. They should be protected from gross contamination during storage. Just prior to the adhesive application, the surfaces to be bonded should be wiped with a ketone solvent.

**Cleanup** - Overspray must be removed prior to curing the primer. Uncured primer may be removed with a ketone solvent in a well-ventilated area. Saturate a clean cloth or industrial wiper with solvent and apply just enough to do the job. Consult your solvent supplier's information pertaining to the safe and proper use of flammable solvents. Uncured wet primer may be cleaned up with water.

**Bond Strength Performance**

This primer is compatible with adhesives curing from room temperature 77°F/25°C to 350°F/177°C. The following properties were obtained with Hysol EA 9657 .08 psf (390 g/m<sup>2</sup>) film adhesive cured 90 minutes @ 350°F/177°C and 45 psi/310 kPa. Hysol EA 9257 primer was applied at 0.2 to 0.4 mils (0.005-0.010 mm) dry film thickness (DFT) and baked 60 minutes @ 270°F/132°C part temperature. Adherends are 2024-T3 Alclad or bare aluminum treated with phosphoric acid anodizing per ASTM D3933.

**Metal to Metal Strength**

**Wide Area Overlap Shear Strength**

Wide area overlap shear strength tested per BSS 7202 after curing 90 minutes @ 350°F/177°C. Adherends are 2024-T3.

| <u>Test Temperature, °F/°C</u> | <b>Typical Results</b> |            |
|--------------------------------|------------------------|------------|
|                                | <u>psi</u>             | <u>MPa</u> |
| -67/-55                        | 3,700                  | 25.5       |
| 77/25                          | 3,900                  | 12.7       |
| 350/177                        | 1,850                  | 12.8       |
| *77/25                         | 3,700                  | 25.5       |
| *350/177                       | 1,800                  | 12.4       |

\* Post 1,000 hours aging at 350°F/177°C.

### ***Climbing Drum Peel Strength***

Metal to metal climbing drum peel strength tested per ASTM D1781 after curing 90 minutes @ 350°F/177°C. Adherends are 2024-T3 Alclad aluminum treated with phosphoric acid anodizing per ASTM D3933.

| <u>Test Temperature, °F/°C</u> | <b>Typical Results</b> |              |
|--------------------------------|------------------------|--------------|
|                                | <u>in lb/in</u>        | <u>M•n/m</u> |
| 77/25                          | 27                     | 120          |

### ***Metal to Honeycomb Strength*** ***Climbing Drum Peel Strength***

Honeycomb sandwich strength tested per ASTM D1781 after curing 90 minutes @ 350°F/177°C. Adherends are 2024-T3 Alclad aluminum with 0.25 inch (6.4 mm) cell 5052 non-perforated aluminum core.

| <u>Test Temperature, °F/°C</u> | <b>Typical Results</b> |              |
|--------------------------------|------------------------|--------------|
|                                | <u>in lb/3 in</u>      | <u>N•m/m</u> |
| 77/25                          | 43                     | 63.8         |

### ***Flatwise Tensile Strength***

Flatwise tensile strength tested per ASTM C297 after curing 90 minutes @ 350°F/177°C. Adherends are 2024-T3 clad aluminum with 0.25 inch (6.35 mm) cell 5052 non-perforated aluminum core.

| <u>Test Temperature, °F/°C</u> | <b>Typical Results</b> |            |
|--------------------------------|------------------------|------------|
|                                | <u>Psi</u>             | <u>MPa</u> |
| 77/25                          | 1,130                  | 7.8        |
| 350/177                        | 450                    | 3.1        |
| *350/177                       | 400                    | 2.8        |

\* Post 1,000 hours aging at 350°F/177°C.

### **Service Temperature**

Service temperature is defined as that temperature at which this primer still retains 1000 psi/6.9 MPa using test method ASTM D1002 and is approximately 350°F/177°C when using BMS 5-137 qualified adhesive Hysol EA 9657.

### **Handling Precautions**

Do not handle or use until the Material Safety Data Sheet has been read and understood.  
For industrial use only.

### **General:**

As with most epoxy based systems, use this product with adequate ventilation. Do not get in eyes or on skin. Avoid breathing the vapors. Wash thoroughly with soap and water after handling. Empty containers retain product residue and vapors so obey all precautions when handling empty containers.

***WARNING!*** This material contains a small amount of strontium chromate, a carcinogen, for corrosion protection. Avoid all skin contact. Causes eye irritation and may cause skin irritation such as allergic dermatitis.

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Rev. 1/01

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Users should review the Materials Safety Data Sheet (MSDS) and product label for the material to determine possible health hazards, appropriate engineering controls and precautions to be observed in using the material. Copies of the MSDS and label are available upon request.

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