



## Hysol® EA 9258.1

### Adhesive Bonding Primer

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#### **Description**

Hysol EA 9258.1 is a water-borne chromated adhesive bonding primer for 350°F/177°C service. It is designed to offer at least twice the improvement in peel strength toughness over current 350°F/177°C service film adhesives. It is applied with current aerospace primer spray equipment, and provides low VOCs of 142 g/liter. It may be cured 45-60 minutes 350°F (177°C) for optimum performance. The data contained herein were obtained with the companion film adhesive Hysol EA 9689.1GK and Hysol EA 9689.06 Unsupported.

#### **Features**

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

Excellent storage and outtime stability.  
12 months @ 40°F/5°C. (Do not freeze)  
Worklife of 30 days @ 77°F/25°C or 10 days @ 90°F/30°C  
Capable of applying up to 0.1 mil (0.0025 mm) per box coat.  
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 improves effective coverage versus conventional 10% solids solvent-based primers.  
No special application equipment is required. Specifically developed for maximum transfer efficiency with high volume low pressure (HVLP).

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

Meets latest South Coast Air Quality Management District (SCAQMD) Rule 1124 requirements effective January 2002.  
142 grams per liter VOC.  
Flash point >200°F/95°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.

## Uncured Adhesive Properties

	<u>One Part</u>
Color	Green
Solids	20%
Weight per gallon	8.7 lbs (1.04 kg/l)
Corrosion Inhibition Package	Chromates
Warranty (from date of shipment)	
@ 40°F/5°C	12 months
@ 77°F/25°C	1 months
Volatile Organic Compounds (VOC)	142 g/l**

\*\* SCAQMD Rule 1124 (less water)

## Handling

Store @ 40°F/5°C. 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 9258.1 should be cured for 45-60 minutes @ 350°F/177°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 #30 Air Cap AV-16-EX Fluid Tip JVA 402 DEX Fluid Needle Valve
Line Pressure:	100 PSI (0.69 N/mm <sup>2</sup> )
Pressure at Gun:	40-50 PSI (0.28-0.34 N/mm <sup>2</sup> )
Fan Pattern:	Full Spray
Volume Control:	As necessary to apply 0.1-0.2 mils (0.0025-0.005 mm) DFT per box coat. Suggest starting at <sup>3</sup> / <sub>4</sub> 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

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

System: Devilbiss HVLP System 89™  
 Gun: Model JGA-510  
 #57 Air Cap  
 JGA 4046-22 Fluid Tip & Needle Valve  
 Line Pressure: 100 psi (0.69 N/mm<sup>2</sup>)  
 Pressure at Gun: 10 psi (0.07 N/mm<sup>2</sup>)  
 Fan Pattern: Full Spray  
 Volume Control: As necessary to apply 0.1-0.2 mils (0.0025-0.005 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: 15-30 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 9689.1 psf (490 g/m<sup>2</sup>) and Hysol EA 9689.06 psf (290 g/m<sup>2</sup>) unsupported film adhesives cured 60 minutes @ 350°F/177°C and 45 psi. Hysol EA 9258.1 primer was applied at 0.2 to 0.4 mils (0.005-0.01 mm) dry film thickness (DFT) and baked 45 minutes @ 350°F/177°C part temperature. Adherends are 2024-T3 clad or bare aluminum treated with phosphoric acid anodizing per ASTM D3933.

**Metal to Metal Strength  
 Tensile Lap Shear**

Wide area overlap shear strength tested after curing 60 minutes @ 350°F/177°C. Adherends are 2024-T3.

<u>Test Temperature, °F/°C</u>	<b>Typical Results with Hysol EA 9258.1</b>			
	<b>Hysol EA 9689.1GK</b>	<b>Hysol EA 9689.06 Uns</b>		
	<u>Psi</u>	<u>Mpa</u>	<u>Psi</u>	<u>Mpa</u>
77/25	4,300	29.7	3,800	26.2
350/177	3,100	21.4	3,200	22.1

**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 clad aluminum with 0.25 inch (6.4 mm) cell 5052 non-perforated aluminum core.

<u>Test Temperature, °F/°C</u>	<b>Typical Results with Hysol EA 9258.1</b>			
	<b>Hysol EA 9689.1GK</b>	<b>Hysol EA 9689.06 Uns</b>		
	<u>in lb/3 in</u>	<u>N•m/m</u>	<u>in lb/3 in</u>	<u>N•m/m</u>
77/25	26	38.6	14	20.8

### ***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 (6.4 mm) cell 5052 non-perforated aluminum core.

#### **Typical Results with Hysol EA 9258.1**

<b><u>Test Temperature, °F/°C</u></b>	<b>Hysol EA 9689.1GK</b>		<b>Hysol EA 9689.06 Uns</b>	
	<b><u>psi</u></b>	<b><u>Mpa</u></b>	<b><u>psi</u></b>	<b><u>Mpa</u></b>
77/25	940	6.5	850	5.9
350/175	650	4.5	530	3.7

### **Comparative Data**

	<b>EA 9689.1GK/ <u>EA 9258.1</u></b>	<b>EA 9689.1GK/ <u>EA 9205R</u></b>
77F/25C Bell Peel pli	6	3
77F/25C Honeycomb Climbing Drum Peel in lb/3 in	26	24
77F/25C Tensile Lap Shear psi/MPa	4,300	3,700
350F/177F Tensile Lap Shear psi/MPa	3,100	3,100
350F/177F Flatwise Tensile psi/MPa	650	500

### **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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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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