

# LOCTITE EA 9258.1 AERO

## Adhesive Bonding Primer

(KNOWN AS HYSOL EA 9258.1)

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### INTRODUCTION

LOCTITE EA 9258.1 AERO 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 LOCTITE EA 9658 0.10NWG AERO and LOCTITE EA 9658 AERO 0.060 Unsupported.

### FEATURES

- Improves Production Rates
- Excellent storage and out time stability.
- 12 months @ 40°F (5°C) **DO NOT FREEZE**
- Work Life of 30 days @ 77°F (25°C) or 10 days @ 90°F (30°C)
- Capable of applying up to 0.10 mil (3 microns) 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<sup>®</sup>] and MEK clean)

### Cost Effective

- 20% solids improve 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

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### 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 LOCTITE Surface Preparation Guide. The primer should be sprayed after mixing well (15 minutes using shaker at low agitation speed or 60 minutes using paint roller) using the following procedure. LOCTITE EA 9258.1 AERO 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 0.1-0.4 mils (3-10 microns) dried film thickness (DFT).

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

Spray Gun System	DeVilbiss JGA-510 HVLP - #57 Air Cap & Baffle JGA 4046-22 Fluid Tip & Needle
Inlet air pressure gun capability	100 psi (7 bar)
Outlet gun pressure:	10 psi (0.7 bar)
Inlet air pressure to spray gun:	45 psi (3 bar)
Priming conditions:	70-85°F (21-29°C) & <60% R.H.
Fan Pattern	4-6 inches (10-15 cm)
Volume Control	As necessary to apply 0.1-0.2 mils (3-5 microns) DFT per box coat. Suggest starting ½ to ¾ turns from off position.
Distance to panels	8-12 inches (20-30 cm)
Number of coats	One box coat per 0.1-0.2 mils (3-5 microns) DFT
Interval between coats	30-60 seconds
Flash off conditions	30 minutes minimum at ambient temperature

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**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

**Floating Roller (Bell) Peel Strength** - tested per EN 2243-2 after curing 1 hour at 350°F (177°C). Adherends are 2024-T3 AlClad 0.020 inch (0.51 mm) & 0.063 inch (1.6 mm) thick aluminum and treated with Phosphoric Acid Anodizing per ASTM D3933.

Primer Thickness		Test Temp.		LOCTITE EA 9258.1 AERO LOCTITE EA 9658 AERO 0.10 psf (490 g/m <sup>2</sup> ) NWG	
mils	microns	°F	°C	lb/in	N/25mm
0.12	3	77	25	13	58
0.24	6	77	25	15	65
0.39	10	77	25	14	62

**Honeycomb Sandwich Performance** - tested per EN 2243-3 after curing 1 hour @ 350°F (177°C). Adherends are 2024-T3 bare 0.020 inch (0.51 mm) thick aluminum treated with Phosphoric Acid Anodizing per ASTM D3933 with 3/8 inch (9.5 mm) cell 5052 non-perforated aluminum core.

The 0.060 psf (290 g/m<sup>2</sup>) unsupported film was reticulated onto the core. Nominal primer thickness was 0.020-0.24 mils (5-6 microns).

Sample Conditioning	Test Temp.		LOCTITE EA 9258.1 AERO LOCTITE EA 9658 AERO 0.060 psf (290 g/m <sup>2</sup> ) UNS		LOCTITE EA 9658 AERO 0.10 psf (490 g/m <sup>2</sup> ) NWG	
	°F	°C	in·lbs/3in	N·m/m	in·lbs/3in	N·m/m
Dry	77	25	14	21	26	39

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**Tensile Lap Shear Strength** - tested per ASTM D1002 after curing 1 hour at 350°F (177°C). Adherends are 2024-T3 Bare aluminum treated with Phosphoric Acid Anodizing per ASTM D3933. Nominal primer thickness was 0.020-0.24 mils (5-6 microns).

### LOCTITE EA 9258.1 AERO

Sample Conditioning	Test Temp.		LOCTITE EA 9658 AERO 0.060 psf (290 g/m <sup>2</sup> ) UNS		LOCTITE EA 9658 AERO 0.10 psf (490 g/m <sup>2</sup> ) NWG	
	°F	°C	psi	MPa	psi	MPa
Dry	-67	-55	4350	30.0	4370	30.2
	77	25	5200	35.9	5290	36.5
	250	121	3960	27.3	4030	27.8
	350	177	3110	21.4	3000	20.7
Wet 750 hrs. at 158°F (70°C) & 95% R.H.	77	25	3870	26.7	3790	26.1
	250	121	3430	23.6	3390	23.4
1000 hrs. at 350°F (177°C)	350	177	1760	12.1	1840	12.7
	77	25	3910	27.0	3670	25.3
3000 hrs. at 350°F (177°C)	350	177	2760	19.0	2640	18.2
	77	25	3230	22.3	3170	21.8
6000 hrs. at 350°F (177°C)	350	177	2710	18.7	2690	18.6
	77	25	2780	19.2	2750	19.0
	350	177	2530	17.4	2190	15.1

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**Flatwise Tension Strength** - tested per ASTM C297 after curing 1 hour @ 350°F/175°C. Adherends are 2024-T3 Bare aluminum with 3/8 inch (9.50 mm) cell 5052 non-perforated aluminum core. The 0.060 psf (290 g/m<sup>2</sup>) unsupported film was reticulated onto the core. Nominal primer thickness was 0.020-0.24 mils (5-6 microns).

Thermally aged samples were drilled through each cell wall with a 0.10 inch (2.5mm) diameter drill for thermal exposure.

Sample Conditioning	Test Temp.		LOCTITE EA 9258.1 AERO			
			LOCTITE EA 9658 AERO 0.060 psf (290 g/m <sup>2</sup> ) UNS		LOCTITE EA 9658 AERO 0.10 psf (490 g/m <sup>2</sup> ) NWG	
			°F	°C	psi	MPa
Dry	-67	-55	1350	9.3	1310	9.1
	77	25	1260	8.7	1220	8.4
	250	121	1020	7.0	1010	7.0
	350	177	700	4.8	640	4.4
Wet: 750 hrs. at 158°F (70°C) & 95% R.H.	77	25	980	6.7	930	6.4
	250	121	770	5.3	690	4.8
1000 hrs. at 350°F (177°C)	77	25	1140	7.8	1130	7.8
	350	177	450	3.1	420	2.9
3000 hrs. at 350°F (177°C)	77	25	1070	7.4	1060	7.3
	350	177	420	2.9	410	2.8
6000 hrs. at 350°F (177°C)	77	25	1000	6.9	930	6.4
	350	177	300	2.1	320	2.2

**Handling Precautions**

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

**DISPOSAL INFORMATION**

Dispose of spent remover and paint residue per local, state and regional regulations. Refer to HENKEL TECHNOLOGIES MATERIAL SAFETY DATA SHEET for additional disposal information.





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### PRECAUTIONARY INFORMATION

#### 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.

Before using this product refer to container label and HENKEL TECHNOLOGIES MATERIAL SAFETY DATA SHEET for additional precautionary, handling and first aid information.

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