

# LOCTITE EF 9833.1 AERO

## Core Splice Adhesive

(KNOWN AS Hysol EA 9833.1)

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### INTRODUCTION

LOCTITE EF 9833.1 AERO is a modified bismaleimide foaming core splice adhesive. It is designed for use up to 450°F (230°C). This product handles like an epoxy and may be cured @ 350°F (177°C) followed by an elevated temperature post cure.

### FEATURES

- Intumescent Core Splice Adhesive
- Supplied in 50 mil (1.27 mm) nominal sheets
- High Service Temperature
- Expansion Ratio (free film) is 2X to 3X at 350°F (177°C)
- Low slump
- Low exotherm

### Handling

This product is in sheet form and is ready to use as received. The adhesive should be removed from cold storage and allowed to warm to room temperature (77°F/25°C). All moisture should be removed from the protective packaging before opening. The adhesive film has a protective liner(s) on it, which must be removed prior to parts assembly (see "Applying" below). The liner(s) will always be a contrasting color from the adhesive to allow the user easy confirmation of removal.

### Application

**Storage** - This product requires refrigerated storage. Store @ 0°F/-18°C or below for maximum storage life. Warranty life @ 0°F/-18°C is 12 months from date of shipment. Store only in sealed containers to prevent moisture contamination. Allow all moisture to evaporate from container before opening for use. A maximum of three freeze/thaw cycles is recommended on uncured film.

**Applying** - Bonding surfaces should be clean, dry and properly prepared. For optimum surface preparation consult the LOCTITE Surface Preparation Guide. This product is available in sheet form as 1 ft x 2 ft (0.30 x 0.61 m) sheets with polyethylene separator film on one side and paper on the other. LOCTITE EF 9833.1 AERO should be cut to the desired size and shape, the polyethylene liner and paper removed, and the material placed in the splice junction.

**Open Assembly Time** - This adhesive may be used within the following schedule after removing from cold storage:

@ 77°F/25°C at least 30 days

@ 90°F/32°C at least 10 days

**Curing** - This product may be cured for one hour @ 350°F (177°C). Heat up rate to the cure temperature should be between 1°F and 5°F (0.5°C and 2.5°C) per minute. Post cure @ 400°F to 475°F (204°C to 246°C) for 2 to 6 hours for optimum properties.

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**Cleanup** - It is important to remove excess adhesive from the part and bonding tools before it hardens. Once the adhesive is cured, it is difficult to remove except by mechanical abrasion. Uncured adhesive may be removed with denatured alcohol and many common industrial solvents. Be careful to prevent any solvent from entering the uncured bondline as solvent will degrade the final bond performance. Consult your supplier's information pertaining to the safe and proper use of solvents.

### Bulk Resin Properties

Uncured Thickness Range	0.050±0.010 inch	1.27±0.254 mm
Areal Weight	42 lb/ft <sup>2</sup>	1757 g/m <sup>2</sup>
Volatile Content at 217°F (103°C) for 120 min.	<1%	
Expansion Ratio, 2D	2 to 2.5	
▪ 2 plies, 2 in <sup>2</sup> (5.1cm <sup>2</sup> )		
▪ 2.5°C/min. to 350°F (177°C), 60 min.		
Slump at 350°F (177°C)	<0.25 inch	<6.4 mm
Gel Time at 350°F (177°C)	8±2 minutes	

### Bond Strength Performance

#### Tube Shear Strength

Tube shear strength tested per BMS 5-90. Adherends are 5052 bare aluminum tubing treated with FPL etch per ASTM D2651-90. Assembled tubes are loaded with 44-45 grams of LOCTITE EF 9833.1 50M AERO.

Test Temperature, °F (°C)	Cure Cycle	psi	MPa
77 (25)	4 hours at 350°F (177°C)	1,000	6.9
	+		
350 (177)	6 hours at 415°F (212°C)	1,000	6.9
	+		
350 (177)	4 hours at 350°F (177°C)	986	6.8
	+		
410 (210)	2 hours at 440°F (225°C)	769	5.3

### Handling Precautions

Do not handle or use until the 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.

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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Rev. 9/2013

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