

INTRODUCTION

LOCTITE EA 9814 AERO is an intermediate density, fire retardant, one-component epoxy syntactic for use on honeycomb composite parts requiring high compressive strength at temperatures up to 350°F (177°C).

FEATURES

- One part structural syntactic
- Intermediate density
- Fire retardant
- Pre-weighed in disposable plastic cartridges
- High compressive strength
- Dual cure system 260°F (127°C) or 350°F (177°C)
- No cell wall separation or cracking due to thermal stresses
- Excellent fluid resistance



Properties

Color	Off White	
Cured Density	0.75 g/cc	
Freeze thaw time	6-8 hours	
Work Life at 77°F (25°C)	≥8 hours after freezer thaw	
	<24 hours	
Shelf Life ≤-20°F (-29°C)	12 months	

Handling Characteristics

For consistent extrusion rate performance, the following handling recommendation should be performed. Remove frozen cartridges from the freezer and allow the cartridges to thaw at 70-90°F (21-32°C) for 6-8 hours. Recommended extrusion process would be to use a pneumatic hand gun at 80 lbs/in² (6 bar) without nozzle.

Cure Schedule

Heat the material from room temperature at the rate of 3°F (2°C) per minute to either 260°F (127°C) for 90 minutes or 350°F (177°C) for 60 minutes. Recommend a cool down rate of 3-5°F (2-3°C) per minute to room temperature.





Physical Uncured and Cured Test Properties

Test Property	Cure Condition	Test Condition	Unit	Result
Extrusion Rate (6oz Cartridge without nozzle)	n/a	8 hours at 77°F (25°C) prior to extrusion using 80 lbs/in² (6 bar) air pressure	(g/min.)	1348
Vertical Flow (Tested at 30 min.)	n/a	77°F (25°C) 125°F (52°C)	inch (mm)	0.10 (2.54) 0.13 (3.18)
Cured Density	90 min. at 260°F (127°C) 60 min. at 350°F (177°C)	77°F (25°C)	lbs/ft ³ (g/cc)	47 (0.75)
Flammability (Horizontal Self Extinguishing)	90 min. at 260°F (127°C)	15 second horizontal ignition	inch	1.0 (2.5)
Sample Size: 0.5" x 0.5" x 5" (12.7mm x 12.7mm x 127mm).	60 min. at 350°F (177°C)	Report Gauge Burn Length	(cm)	0.9 (2.2)
Fluid Immersion	90 min. at 260°F (127°C)	TT-S-735, Type III Hydrocarbon Fluid MIL-PRF-5606 Hydraulic Fluid		0.0
		(Aeroshell Fluid 41)	%	0.1
(% Weight Gain)	(,	Skydrol LD4 Distilled Water		0.2
Sample Size: 0.5 in ³ (12.7 mm ³)			0.1	
Sample Conditioning: 24 hours fluid soak at 77°F (25°C)	60 min. at 350°F (177°C)	TT-S-735, Type III Hydrocarbon Fluid	%	0.0
		MIL-PRF-5606 Hydraulic Fluid (Aeroshell Fluid 41)		0.2
		Skydrol LD4		0.3
		Distilled Water		0.1





Mechanical Test Properties

Tensile Lap Shear Strength Performance

- Test Method per ASTM D1002 (EN2243-1).
- Metal: 2024T-3 Clad, 0.063" (1.6mm) thick.
- Etch: Phosphoric Acid Anodized per ASTM D3933.
- Cured bondline thickness range 9-11 mils.

Compression Strength Performance

- Test Method per ASTM D695 (ISO 604).
- Block sample dimension: 0.5" x 0.5" x 1.0" (12.7mm x 12.7mm x 2.54mm).
- Sample soak time at elevated test temperature was 10 min. at test temperature prior to testing.

Test Property	Cure Condition	Test Temperature	Unit	Result
Tensile Lap Shear Strength	90 min. at 260°F (127°C)	77°F (25°C)	lbs/in² (MPa)	1,882 (13.0)
	60 min. at 350°F (177°C)			1,748 (12.1)
Compression Strength (Ultimate)	90 min. at 260°F (127°C)	77°F (25°C) 350°F (177°C)	lbs/in² (MPa)	15,219 (104.9) 7,584 (52.3)
	90 min. at 260°F (127°C) + Post Cure 60 min. at 350°F (177°C)	350°F (177°C)	lbs/in² (MPa)	8,329 (57.4)
	60 min. at 350°F (177°C)	77°F (25°C) 350°F (177°C)	lbs/in² (MPa)	15,365 (105.9) 8,337 (57.5)
	60 min. at 350°F (177°C) + Post Cure 60 min. at 350°F (177°C)	350°F (177°C)	lbs/in² (MPa)	8,540 (58.9)







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 epoxy resin residue per local, state and regional regulations. Refer to HENKEL TECHNOLOGIES MATERIAL SAFETY DATA SHEET for additional disposal information.

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.

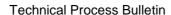
CAUTION! This material may cause eye and skin irritation or allergic dermatitis. It contains epoxy resins.

WARNING!

This material causes eye and skin irritation or allergic dermatitis. It contains amines.

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







Epoxy Paste Adhesive Technical Data Sheet

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