

LOCTITE EA 956 AERO

Epoxy Paste Adhesive

(KNOWN AS Hysol EA 956)

INTRODUCTION

LOCTITE EA 956 AERO is a two-component adhesive, which has excellent elevated temperature strength. Its room temperature cure capability and low viscosity make it ideal for repair applications, including laminating, injection and coating.

FEATURES

- Two Component System
- Low Viscosity
- Room Temperature Cure
- Ideal for Repair

Uncured Adhesive Properties

Property	Part A	Part B	Mixed
Color	Amber	Amber	Amber
Viscosity @ 77°F Brookfield, HBT	350 Poise Spdl 4 @ 20 rpm	20 Poise Spdl 1 @ 20 rpm	162 Poise Spdl 3 @ 20 rpm
Viscosity @ 25°C Brookfield, HBT	35 Pa-S Spdl 4 @ 2.1 rad/sec	3 Pa-S Spdl 1 @ 2.1 rad/sec	
Density, g/ml	1.22	0.96	1.15
Shelf Life			
@ <40°F/4°C	1 year	1 year	
@ <77°F/25°C	3 month	1 year	
@ <90°F/32°C	1 month	1 year	

Handling

Mixing - This product requires mixing two components together just prior to application to the parts to be bonded. Complete mixing is necessary. The temperature of the separate components prior to mixing is not critical, but should be close to room temperature (77°F/25°C).

Mix Ratio	Part A	Part B
By Weight	100	58

Note: Volume measurement is not recommended for structural applications unless special precautions are taken to assure proper ratios.

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Pot Life (450 gram mass) >30 minutes @ 77°F/25°C
Method - ASTM D 2471 in water bath.

Application

Mixing - Combine Part A and Part B in the correct ratio and mix thoroughly. THIS IS IMPORTANT! Heat buildup during or after mixing is normal. Do not mix quantities greater than 250 grams as dangerous heat buildup can occur causing uncontrolled decomposition of the mixed adhesive. TOXIC FUMES CAN OCCUR, RESULTING IN PERSONAL INJURY. Mixing smaller quantities will minimize the heat buildup.

Applying - Bonding surfaces should be clean, dry and properly prepared. For optimum surface preparation consult the LOCTITE Surface Preparation Guide. The bonded parts should be held in contact until the adhesive is set. Handling strength for this adhesive will occur as shown below, after which the support tooling or pressure used during cure may be removed. Since full bond strength has not yet been attained, load application should be small at this time.

Handling Strength: Lap shear >500 psi (3.4 MPa) is achieved with:

Cure Time	Test Temperature, °F/°C
6 hours	77/25
20 minutes	140/60
3 minutes	185/85
1 minutes	250/121

Curing - LOCTITE EA 956 AERO may be cured for 5 to 7 days @ 77°F/25°C to achieve normal performance. Accelerated cures up to 200°F/93°C (for small masses only) be used as an alternative. For example, 1 hour @ 200°F/93°C will give complete cure.

Cleanup - It is important to remove excess adhesive from the work area and application equipment before it hardens. Denatured alcohol and many common industrial solvents are suitable for removing uncured adhesive. Consult your supplier's information pertaining to the safe and proper use of solvents.

Bond Strength Performance

Tensile Lap Shear Strength

Tensile lap shear strength tested per ASTM D1002 after curing as shown below.
Adherends are 2024-T3 AlClad aluminum treated with chromic acid etch.

Test Temperature	Cured 5 days @77°F/25°C		Cured 1 hr @180°F/82°C		Cured 1 hr @200°F/93°C	
	psi	MPa	psi	MPa	psi	MPa
°F/°C						
-67/-55	1,780	12.3	--	--	2,400	16.5
77/ 25	2,300	15.8	2,250	15.5	2,500	17.2
300/149	--	--	--	--	1,000	6.9
400/204	--	--	300	2.1	300	2.1

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Service Temperature

Service temperature is defined as that temperature at which this adhesive still retains 1000 psi (6.9 MPa) using test method ASTM D1002 and is 300°F/149°C, when cured 1 hour @ 200°F/93°C.

Bulk Resin Properties

Tensile Properties - tested using 0.125 inch/3.18 cm castings per ASTM D638.

Test Property	Unit	Cured 2 hours @200°F/93°C	Cured 7 days @77°F/25°C
Tensile Strength, @77°F/25°C	psi (MPa)	6,900 (47.5)	5,800 (40.0)
Tensile Modulus, @77°F/25°C	ksi (MPa)	360 (2483)	370 (2552)
Elongation at Break, @77°F/25°C	%	2.54	2.35
Shore D Hardness @ 77°F/25°C	Report	88	85
Tg	°F (°C)	253 (123)	156 (69)

Compressive Properties - tested using 0.5 inch/12.7 cm castings per ASTM D 695.

Test Property	Unit	Cured 7 days @77°F/25°C
Compressive Strength, @77°F/25°C	ksi (MPa)	12 (82.8)
Compressive Modulus, @77°F/25°C		158 (1089)

Electrical Properties - tested per ASTM D149, D150

Test Property	0.1 KHz	1.0 KHz	10.0 KHz
Dielectric Constant	3.63	3.59	3.46
Dissipation Factor	.007	.017	.028
Volume Resistivity (ohm-cm)	8.53 x 10 ¹⁴		
Surface Resistivity (ohm)	2.43 x 10 ¹⁵		
Thermal Conductivity	4.90 x 10 ⁴ cal/sec-cm-°C/0.205 W(m•K)		

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.

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.



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PART A

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

PART B

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.

Note

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