

LOCTITE EA 901NA/B-1 AERO

Epoxy Paste Adhesive

(KNOWN AS Hysol EA 901NA/B-1)

INTRODUCTION

LOCTITE EA 901NA/B-1 AERO is a two component, room temperature curing thixotropic paste adhesive suitable for bonding a variety of substrates, such as metal, rubber, plastics, wood and glass. To aid in assuring good mixing, the adhesive gradually changes to a red color during the mixing of the two components. Although the adhesive is a smooth paste when mixed, its thixotropy helps keep it in place when applied to bonding surfaces. Fully cured bonds resist water, salt spray and most organic liquids.

FEATURES

- Two Component System
- Good Sag Resistance
- Bonds a Variety of Surfaces
- Color Change on Mixing
- Room Temperature Cure
- Good Gap Filling Qualities

Uncured Properties

	Part A	Part B	Mixed
Color	Gray	Amber	Green-Gray
Viscosity @ 77°F	5300 Poise	30 Poise	
Brookfield, HBT	Spdl 7 @ 20 rpm	Spdl 1 @ 20 rpm	
Viscosity @ 25°C	530 Pa·S	3.0 Pa·S	
Brookfield, HBT	Spdl 7 @ 2.09 rad/sec	Spdl 1 @ 2.09 rad/sec	
Shelf life @ <40°F/4°C	1 year	1 year	

This material will normally be shipped at ambient conditions, which will not alter our standard warranty, provided that the material is placed into its intended storage upon receipt. Premium shipment is available upon request.

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).

<u>Mix Ratio</u>	<u>Part A</u>	<u>Part B</u>
By Weight	100	23

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

Pot Life (450 gram mass) 50 minutes @ 77°F/25°C
Method - ASTM D2471 in water bath.



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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 in 8 hours @ 77°F/25°C, 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.

Curing - This adhesive may be cured for 5 days @ 77°F/25°C to achieve normal performance. Accelerated cures up to 300°F/149°C (for small masses only) may 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 under two different conditions. Adherends are 2024-T3 AlClad aluminum treated with phosphoric acid anodized ASTM D3933.

<u>Test Temperature, °F/°C</u>	Typical Results			
	Cured 24 hrs @ 77°F/25°C		Cured 1 hr @ 200°F/93°C	
	<u>psi</u>	<u>MPa</u>	<u>psi</u>	<u>MPa</u>
-67/-55	1,800	12.4	3,400	23.4
77/25	2,800	19.3	3,500	24.1
150/66	1,100	7.6	3,400	23.4
200/93	700	4.8	2,500	17.2
250/121	-	-	700	4.8





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Adhesive Cured 2 hrs @ 200°F/95°C

Typical Results Tested at 77°F/25°C

<u>Fluid Exposure</u>	<u>Conditioning</u>	<u>psi</u>	<u>MPa</u>
Water	30 days at 77°F/25°C	3,100	21.4
Fire retardant hydraulic fluid	7 days at 77°F/25°C	3,100	21.4
Hydraulic Oil	7 days at 77°F/25°C	3,000	20.7
JP-4 Fuel	7 days at 77°F/25°C	3,100	21.4
Salt Spray	30 days at 105°F/41°C	2,500	17.2
Hydrocarbon Fluid	7 days at 77°F/25°C	3,000	20.7
Anti-icing Fluid	7 days at 77°F/25°C	3,300	22.7

Substrate

Adhesive Cure

Typical Results Tested @ 77°F/25°C

<u>Substrate</u>	<u>Adhesive Cure</u>	<u>psi</u>	<u>MPa</u>
ABS Plastic to Steel	3 days @ 77°F/25°C	700	4.8
Delrin			
Solvent Wiped	3 days @ 77°F/25°C	400	2.8
Etched		600	4.1
Sanded		1,000	6.9
Steel (Sandblasted)	5 days @ 77°F/25°C	3,400	23.4
	2 hrs @ 170°F/77°C	3,300	22.7

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 225°F/107°C (with 200°F/93°C cure).

Bulk Resin Properties

Tensile Properties – tested using 0.125 inch/3.18mm castings per ASTM D638.

	<u>Typical Results</u>	
Tensile Strength @ 77°F/25°C	4,300 psi	29.6 MPa
Tensile Modulus @ 77°F/25°C	540 ksi	3721 GPa
Elongation at Break @ 77°F/25°C	0.9%	
Shore D Hardness @ 77°F/25°C	90	

Compressive Properties – tested using 0.5inch/12.7mm castings per ASTM D695.

	<u>Cured 24 hrs @ 77°F/25°C</u>	
Compressive Strength @ 77°F/25°C	17,800 psi	122.6 MPa





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Electrical Properties – tested per ASTM D149, D150.

Dielectric Constant, (1 KHz)	6.48
Dissipation Factor, (1 KHz)	0.026
Volume Resistivity	2.70 ohm-cm
Surface Resistivity	1.30 ohm

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.

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.





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Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

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