



Hysol® EA 901NA/B-1

Epoxy Paste Adhesive

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Description

Hysol EA 901NA/B-1 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 Adhesive Properties

	Part A	Part B	Mixed
Color	Gray	Black	Red
Viscosity @ 77°F	6,500 Poise	20 Poise	
Brookfield, HBT	Spdl 7 @ 20 rpm	Spdl 1 @ 20 rpm	
Viscosity @ 25°C	650 Pa·S	2.0 Pa·S	
Brookfield, HBT	Spdl 7 @ 2.1 rad/sec	Spdl 1 @ 2.1 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).

Mix Ratio	Part A	Part B
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 g mass) 50 minutes

Method - ASTM D2471 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 Hysol 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.

Typical Results

Test Temperature, °F/°C	Cured 24 hrs @ 77°F/25°C		Cured 1 hr @ 200°F/93°C	
	psi	MPa	psi	MPa
-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

Typical Results

Cured 2 hrs @ 200°F/95°C

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

*Test temperature 77°F/25°C

Substrate	Cure	Typical Results	
		Strength @ 77°F/25°C	
		psi	MPa
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).

Henkel QC Acceptance Testing

This data sheet provides users with typical properties obtained from this adhesive. These values are not meant to be used to develop aerospace QC acceptance testing. Users interested in establishing values and tests for routine QC acceptance should request our internal specification (DAS), which provides detail test methods and values used to certify this adhesive.

Bulk Resin Properties

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

	Typical Results	
Tensile Strength @ 77°F/25°C	4,300 psi	29.6MPa
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.

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

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.

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

WARNING! As most epoxy based systems, the uncured adhesive may cause eye and skin irritation or allergic dermatitis. Contains epoxy resins.

PART B

DANGER! Causes severe skin and eye burns. Contains diethylenetriamine. Vapors may be irritating to the respiratory tract

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Users should review the Materials Safety Data Sheet (MSDS) and product label for the material to determine possible health hazards, appropriate engineering controls and precautions to be observed in using the material. Copies of the MSDS and label are available upon request.

