



HYSOL EA 934NA

DESCRIPTION

Hysol® EA 934NA is a two component thixotropic paste adhesive which cures at room temperature and possesses superior strength to 300°F/149°C and higher. Its thixotropic nature and good compressive strength make it ideal for potting, filling and fairing, as well as for shim applications. Hysol EA 934NA is qualified to MMM-A-132 Type 1, Class 3 with a room temperature cure.

Features

- Room Temperature Cure**
- Good Gap Filler**
- 300°F/149°C Performance**
- Potting Material**
- MMM-A-132 Qualified**
- Develops Strength Rapidly**

UNCURED PROPERTIES

	<u>Part A</u>	<u>Part B</u>	<u>Mixed</u>
Color	Gray	Amber	Gray
Viscosity @ 77°F Brookfield, HBT	3,500 - 9,000 Poise Spdl 7 @ 20 rpm	10 - 30 Poise Spdl 1 @ 20 rpm	800 Poise Spdl 6 @ 20 rpm
Viscosity @ 25°C Brookfield, HBT	350 - 900 Pa•s Spdl 7 @ 2.1 rad/s	1 - 3 Pa•s Spdl 1 @ 2.1 rad/s	80 Pa•s Spdl 6 @ 2.1 rad/s
Density (g/ml)	1.5	0.96	1.36
Shelf life			
@ 0°F/-18°C	1 year	1 year	
@ <40°F/4°C	1 year	1 year	
@ <77°F/25°C	3 months	1 year	
@ <90°F/32°C	2 months	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	33

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

Pot Life (450 g mass) 40 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 1 pound 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 at 77°F/25°C, after which the support tooling or pressure used during cure may be removed. (Alternates are: 20 minutes at 140°F/60°C or 1 minute at 205°F/96°C.) 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 - 7 days at 77°F/25°C to achieve normal performance. Accelerated cures up to 200°F/93°C (for small masses only) may be used as an alternative. For example, 1 hour at 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 with your supplier's information pertaining to the safe and proper use of solvents.

BOND STRENGTH

Tensile - Lap Shear Tensile lap shear strength tested per ASTM D1002 after curing for 7 days at 90°F/32°C.

Adherends are 2024-T3 bare aluminum treated with phosphoric acid anodized per ASTM D3933.

<u>Test Temperature, °F/°C</u>	<u>Typical Results</u>	
	<u>psi</u>	<u>MPa</u>
-67/-55	2,800	19.3
77/25	3,100	21.4
180/82	1,800	12.4
300/149	1,000	6.9
500/260	450	3.1

<u>After exposure to*:</u>	<u>Typical Results</u>	
	<u>psi</u>	<u>MPa</u>
77°F/25°C Water - 30 days	3,500	24.1
Isopropyl Alcohol - 7 days	3,300	22.8
Hydraulic Oil - 7 days	3,500	24.1
JP-4 Fuel - 7 days	3,500	24.1
Salt Spray - 105°F/41°C - 30 days	3,300	22.8

*All exposures tested at 77°F/25°C

Specifications

The above values are typical results under ideal conditions. To establish certification values, please refer to the Dexter Aerospace Specification which defines quality control test values, methods and procedures. For a copy of the Dexter Aerospace Specification, contact Dexter's Literature Desk at (510)458-8000.

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 approximately 300°F/149°C.

BULK RESIN PROPERTIES

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

Tensile Strength @ 77°F/25°C	5,800 psi	40 MPa
Tensile Modulus @ 77°F/25°C	550 ksi	3.8 GPa
Elongation at Break, @ 77°F/25°C	1.2%	
Shore D Hardness @ 77°F/25°C	85	
Tg dry		
(Cure 7 days @ 77°F/25°C)	159°F	71°C
(Cure 1 hour @ 200°F/93°C)	264°F	129°C

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

Compressive Strength @ 77°F/25°C (ultimate)	9,500 psi	65.5 MPa
Compressive Strength @ 300°F/149°C (ultimate)	2,500 psi	17.2 MPa

Electrical - tested per ASTM D149, D150.

Dielectric Constant (1KHz, 77°F/25°C)	7.24
Dissipation Factor (1KHz, 77°F/25°C)	0.028

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

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.

Hysol® is a registered trademark of The Dexter Corporation.

Properties listed are typical values and are not intended for use in preparing specifications. Actual values may vary. Recommendations and suggestions contained herein are limited to reasonable commercial use. No express warranties are intended by any representation and there are no warranties which extend beyond the description on the face hereof. The user is advised to use cure conditions when evaluating this product that are as representative as possible of those used in the actual manufactured item.



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