



# LOCTITE EA 9320NA AERO

## Epoxy Paste Adhesive

(KNOWN AS Hysol EA 9320NA)

### INTRODUCTION

LOCTITE EA 9320NA AERO is a two-component paste adhesive with good peel strength as well as elevated temperature resistance.

### FEATURES

LOCTITE EA 9320NA AERO offers the following features:

- Two Component System
- High Peel
- Room Temperature Cure
- Good Elevated Temperature Strength
- Meets Strength Requirements of MMM-A-132 Type 1 Class 2

### Uncured Properties

|                  | <u>Part A</u>          | <u>Part B</u>          | <u>Mixed</u> |
|------------------|------------------------|------------------------|--------------|
| Color            | Off White              | Blue                   | Blue         |
| Viscosity @ 77°F | 4,000 Poise            | 0.14 Poise             |              |
| Brookfield       | HBT Spdl 7 @ 20 rpm    | LVF Spdl 1 @ 60 rpm    |              |
| Viscosity @ 25°C | 400 Pa·S               | 0.014 Pa·S             |              |
| Brookfield       | HBT Spdl 7 @ 2.1 rad/s | LVF Spdl 1 @ 6.3 rad/s |              |
| Density (g/ml)   | 1.16                   | 1.00                   | 1.14         |
| Shelf Life       |                        |                        |              |
| @ <40°F/4°C      | 1 year                 | 1 year                 |              |
| @ <77°F/25°C     | 1 year                 | 1 year                 |              |
| @ <90°F/32°C     | 6 mos                  | 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).

| <u>Mix Ratio</u> | <u>Part A</u> | <u>Part B</u> |
|------------------|---------------|---------------|
| By Weight        | 100           | 19            |

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

**Pot Life** (200 gram mass) 25 minutes @ 77°F/25°C  
Method - ASTM D 2471 in water bath.





# LOCTITE EA 9320NA AERO

## Epoxy Paste Adhesive

(KNOWN AS Hysol EA 9320NA)

### 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 must be assembled within 10 minutes of adhesive application and held in contact until the adhesive is set. Handling strength for this adhesive will occur in 24 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** - LOCTITE EA9320NA 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) may be used as an alternative. For example, 1 hour @ 180°F/82°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 D 1002 after curing for 5 days @ 77°F/25°C. Adherends are 2024-T3 AlClad 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                        | 4,900                  | 33.8       |
| 77/ 25                         | 5,000                  | 34.5       |
| 180/82                         | 2,300                  | 15.9       |

#### Peel Strength

T-Peel strength tested per ASTM D1876 after curing for 5 days @ 77°F/25°C. Adherends are 2024-T3 AlClad aluminum treated with phosphoric acid anodized per ASTM D3933.

| <u>Test Temperature, °F/°C</u> | <u>Typical Results</u> |                |
|--------------------------------|------------------------|----------------|
|                                | <u>Lb/in</u>           | <u>N/25 mm</u> |
| 77/25                          | 40                     | 178            |





# LOCTITE EA 9320NA AERO

## Epoxy Paste Adhesive

(KNOWN AS Hysol EA 9320NA)

### Service Temperature

Service temperature is defined as that temperature at which this adhesive still retains 1000 psi /6.9 MPa using test method ASTM D 1002 and is >180°F/82°C.

### Bulk Resin Properties

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

|                                 |           |           |
|---------------------------------|-----------|-----------|
| Tensile Strength @ 77°F/25°C    | 5,000 psi | 34.5 MPa  |
| Tensile Modulus @ 77°F/25°C     | 330 ksi   | 2,274 MPa |
| Elongation at Break @ 77°F/25°C | 9.0%      |           |
| Shore D Hardness @ 77°F/25°C    | 81        |           |
| Tg (by DMTA)                    | 180°F     | 82°C      |
| Shear Modulus                   | 145 ksi   | 999 MPa   |

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

|                                  |           |           |
|----------------------------------|-----------|-----------|
| Compressive Strength @ 77°F/25°C | 8,000 psi | 55.1 MPa  |
| Compressive Modulus @ 77°F/25°C  | 265 ksi   | 1,826 MPa |

**Electrical Properties** - tested per ASTM D149, D150

|                                       |       |
|---------------------------------------|-------|
| Dielectric Constant, 1 KHz, 77°F/25°C | 4.39  |
| Dissipation Factor, 1 KHz, 77 F/25°C  | 0.024 |

### 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.





Technical Process Bulletin

# LOCTITE EA 9320NA AERO

## Epoxy Paste Adhesive

(KNOWN AS Hysol EA 9320NA)

---

### 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.

Rev. 04/2022

---

Henkel Corporation Aerospace | 2850 Willow Pass Road | Bay Point, CA 94565  
PHONE: +1.925.458.8000 | FAX: +1.925.458.8030 | [www.henkel.com/aerospace](http://www.henkel.com/aerospace)

### Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

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.

