



LOCTITE EA 9396.6MD AERO Epoxy Paste Adhesive (KNOWN AS Hysol EA 9396.6MD)

INTRODUCTION

LOCTITE EA 9396.6MD AERO is an easy mixing, two-part syntactic epoxy adhesive with good compressive strength at higher temperatures. LOCTITE EA 9396.6MD AERO can be cured at room temperature (77°F/25°C).

FEATURES

- Good High Temperature Properties
- Easy to Mix
- Low Density
- Good for Potting, Edge Filling, Available in a 6oz Cartridge

Uncured Properties

| | <u>Part A</u> | <u>Part B</u> | <u>Mixed</u> |
|----------------|---------------|---------------|--------------|
| Color | Light Blue | White | Light Blue |
| Density (g/ml) | 0.72 | 0.50 | 0.63 |
| Shelf life | | | |
| @ <0°F/-18°C | 1 year | 1 year | |
| @ <40°F/4°C | 1 year | 6 months | |

Note: 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.

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 | 31 |

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

Pot Life (100 gram mass) 120 minutes @ 77°F/25°C
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 450 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.





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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 24 hours at 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 to 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 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 - tested per ASTM D1002 after curing for 5 days at 77°F/25°C or 60 minutes at 160°F/71°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> |
| 77/25 | 2,700 | 18.6 |
| 300/149 | 1,400 | 9.7 |

Bulk Resin Properties

Compressive Properties - tested using cylindrical 1 inch/25.4 mm tall x 0.5 inch/12.7 mm diameter per ASTM D695, adhesive cure was 5 days at 77°F/25°C.

| <u>Compression Strength @ Ultimate °F/°C</u> | <u>psi</u> | <u>MPa</u> |
|----------------------------------------------|------------|------------|
| 77/25 | 6,500 | 44.8 |
| 300/149 | 3,900 | 26.9 |

Compressive Properties - tested using 0.5 inch/12.7 mm x 0.5 inch/12.7 mm x 1 inch/25.4 mm per ASTM D695, adhesive cure was 60 minutes at 160°F/71°C.

| <u>Compression Strength @ 2% offset, °F/°C</u> | <u>psi</u> | <u>MPa</u> |
|------------------------------------------------|------------|------------|
| 77/25 | 6,000 | 41.4 |
| 300/149 | 3,000 | 20.7 |





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Tensile Properties - tested using 0.125 inch/3.18 mm castings per ASTM D638. Adhesive cure was 90 minutes at 180°F/82°C.

| | | |
|------------------------------|-----------|-----------|
| Tensile Strength @ 77°F/25°C | 3,000 psi | 20.7 MPa |
| Tensile Modulus @ 77°F/25°C | 290 ksi | 2,000 MPa |
| Elongation at Break | 2-3% | |

Shore D Hardness @ 77°F/25°C, 70
 Adhesive Cure 5 days @ 77°F/25°C
 Approx. 0.25 inch/6.35 mm thick

Glass Transition Temperature (Tg) - Rheometric Scientific DMTA IV, heat-up rate: 5°C/min., frequency: 1 Hz, strain: 0.1%, sample dimension: 1 inch/25.4 mm x 0.49 inch/12.4mm x 0.063 inch/1.6 mm.

| Tg Dry (E') | °F/°C |
|-----------------------------------|--------------|
| Adhesive Cure 5 days @ 77°F/25°C | 147/64 |
| Adhesive Cure 1 hour @ 180°F/82°C | 234/112 |

Coefficient of Thermal Expansion (CTE) - per ASTM E831-05, adhesive cure 5 days @ 77°F/25°C.

| | |
|------------|----|
| CTE 1, ppm | 40 |
| CTE 2, ppm | 78 |

Thermal Conductivity - per ASTM E1461, adhesive cure 5 days @ 77°F/25°C.

| | |
|---------------------------------|--------|
| Diffusivity, Cm ² /s | 0.0015 |
| Specific Heat, J/g | 0.99 |
| Conductivity, W/mK | 0.147 |

Dielectric Constant and Loss Tangent at X-Band - per ASTM D2520-95 Method A, adhesive cure 7 days @ 77°F/25°C.

| | |
|-----------------------------|-----------|
| Test Frequency, GHz | 9.375 |
| Specimen Thickness, inch/mm | 0.75/19.1 |
| Wave Length Coefficient | 0.7428 |
| Dielectric Constant | 2.05 |
| Loss Tangent | 0.0239 |

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.

Handling Precautions

Do not handle or use until the Material Safety Data Sheet has been read and understood.
For industrial use only.





Technical Process Bulletin

LOCTITE EA 9396.6MD AERO Epoxy Paste Adhesive (KNOWN AS Hysol EA 9396.6MD)

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.

Note

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