Technical Process Bulletin

LOCTITE EA 9394/ C-2 AERO
Epoxy Paste Adhesive
(KNOWN AS Hysol EA 9394/ C-2)

INTRODUCTION
LOCTITE EA 9394/C-2 AERO is an elevated temperature curing, high service temperature structural paste adhesive. LOCTITE EA 9394/C-2 AERO uses a non-aromatic amine curing agent that retains many of the excellent properties offered by aromatic amine cured systems, high temperature service with a long pot life. LOCTITE EA 9394/C-2 is qualified to MMM-A-132, Type II.

FEATURES
- Excellent Strength Above 400°F/204°C
- Non-MDA, Non Aromatic Amine Curing Agents
- Long Pot Life
- Long Term Thermal Stability

Uncured Properties

	Part A	Part B
Color	Gray	Purple-Dark Green
Viscosity @ 77°F	6,500 Poise	0.4 Poise
Viscometer, Brookfield	HBT Spdl 7 @ 20 rpm	LVF Spdl 1 @ 30 rpm
Viscosity @ 25°C	650 Pa·S	0.04 Pa·S
Viscometer, Brookfield	HBT Spdl 7 @ 2.09 rad/s	LVF Spdl 1 @ 3.17 rad/s
Density (g/ml)	1.45	1
Shelf life		
@ <40°F/4°C	1 year	1 year
@ <77°F/25°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	20

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

Pot Life (450 gram mass) 7 hours @ 77°F/25°C
Method - ASTM D2471 in water bath.

LOCTITE EA 9394/ C-2 AERO
Epoxy Paste Adhesive
(KNOWN AS Hysol EA 9394/ C-2)

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.

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

Curing - This adhesive must be cured for 1 hour @ >200°F/93°C to achieve normal performance.

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 for 1 hour @ 200°F/93°C. Adherends are 2024-T3 Bare aluminum treated with phosphoric acid anodized per ASTM D3933.

	Typical Results	
Test Temperature, °F/°C	**psi**	**MPa**
-67/-55	3,500	24.1
77/25	5,000	34.5
180/82	4,000	27.6
250/121	3,200	22.0
300/149	3,000	20.7
350/177	2,500	17.2
400/204	1,700	11.7
450/232	1,200	8.3
500/260	800	5.5

Tensile Lap Shear Strength - Thermal Aging Performance Results

	Tested at 350°F/177°C	
Thermal Aging Hours @ 350°F/177°F	**psi**	**MPa**
No Exposure	2,443	16.8
1000	2,784	19.2
2000	2,589	17.9
5000	2,613	18.0
12,000	2,355	16.2

LOCTITE EA 9394/ C-2 AERO
Epoxy Paste Adhesive
(KNOWN AS Hysol EA 9394/ C-2)

Tensile Lap Shear Strength - MMM-A-132 Type II Performance Results

	Tested at 77°F/25°C	
Conditioning	**psi**	**MPa**
48 hours at @ 77°F/25°C	5,490	37.9
10 minute soak @ 300°F/149°C	3,100	21.4
192 hours at @ 300°F/149°C	3,230	22.3
10 minute soak @ -67°F/-55°C	3,880	26.8
Hydraulic Oil (MIL-H-83282) for 7 days @ 77°F/25°C	5,640	38.9
Jet Fuel (JP-4) for 7 days @ 77°F/25°C	5,640	38.9
30 days @ 120°F/49°C & 95-100% R.H.	5,260	36.3
Fatigue Strength @ 77°F/25°C	750 psi (52 bar) for 10^6 cycles	
Creep Rupture 1600 psi/110 bar @ 77°F/25°C for 192 hours	<0.1 mil /<25.4 microns	
Creep Rupture 1600 psi/110 bar @ 300°F/149°C for 192 hours	<0.1 mil /<25.4 microns	

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 450°F/232°C.

Bulk Resin Properties
Compressive Properties - tested using Cylindrical 1.40 inch/ 35.6 mm tall x 0.55 inch/14 mm diameter samples per ASTM D695 cured for 1 hour @ 200°F/93°C.

Compression Strength, Ultimate Load	**psi**	**MPa**
Tested @ 77°F/25°C	32,000	220.7
Tested @ 250°F/121°C	17,000	117.2

Shore D Hardness Tested @ 77°F/25°C,	
Adhesive cure 1 hour at 200°F/93°C	84
Approx. 0.25 inch/6.35 mm thick	

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.

LOCTITE EA 9394/ C-2 AERO
Epoxy Paste Adhesive
(KNOWN AS Hysol EA 9394/ C-2)

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

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. 7/2013

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