LOCTITE

Technical Data Sheet

LOCTITE® EA 9807 AERO

December 2024

PRODUCT DESCRIPTION

LOCTITE® EA 9807 AERO provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (Resin)	Purple
Appearance (Hardener)	Amber
Appearance (Mixed)	Purple
Components	Two components - requires mixing
Mix Ratio, by weight - Resin : Hardener	100 : 29.6
Cure	5 to 7 days @ 25°C (77°F)
Secondary Cure	Allow the material to Gel at ambient for a minimum of 60 minutes prior to the heat cure. • 90 minutes at 127°C (260°F) • 60 minutes at 177°C (350°F)
Application	Potting or Edge Fill
Service Temperature	121°C/250°F
Specific Benefits	• Good for potting, edge filling • Pourable consistency • Flame retardant • Low exotherm temperature • Short gel time • Good high temp. properties

LOCTITE® EA 9807 AERO is a two-part room temperature curing intermediate density structural epoxy syntactic flame-retardant potting compound for use on honeycomb assembly parts and repair applications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties

Density, g/cm^3 0.82

Part B Properties

Density, g/cm^3 0.96

Mixed Properties

Density, g/ml 0.85

Viscosity, Brookfield-RVT @ 25°C, mPa·s (cP): 14,194
Spindle 6, Speed 20 rpm

Pot life 100 gram mass, @ 25°C (77ºF), in water bath, ASTM D2471, minutes 90

Remark: Amine carbonate formation (surface tackiness) is normal after a room temperature cure when the uncovered cured epoxy is exposed to the environment. The surface is sandable with the surface tackiness after 8 hours at 25°C (77°F). To avoid surface tackiness, cover the epoxy with Teflon when curing at room temperature or heat cure the epoxy per manufacturing recommendation.

TYPICAL CURING PERFORMANCE

Recommended Curing Conditions

- 5 days @ 25°C (77°F)
- 90 minutes @ 127°C (260°F) after 60 min. @ 25°C (77°F)
- 60 minutes @ 177°C (350°F) after 60 min. @ 25°C (77°F)

Remark: For applications that require an elevated heat cure, allow the material to gel at ambient prior to exposing the material to elevated cure temperatures to prevent excessive cure temperatures.

This adhesive should be cured to the above minimum recommended cure condition to achieve normal performance.

The above cure profile(s) is a guideline recommendation(s). These cure conditions (time and temperature) may vary based on customers' experience and specific application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PERFORMANCE OF CURED MATERIAL

Physical Properties

Shore Hardness Durometer D: 70
Cured 5 days @ 25°C (77°F)
Approx. 6.35 mm / 0.25 inch thick

Glass Transition Temperature (Tg), ASTM D7028
Rheometric Scientific DMTA IV, heat-up rate: 5°C/min., frequency: 1 Hz, strain: 0.1%, sample dimension: 25.4 mm / 1 inch x 12.4mm / 0.49 inch x 1.6mm / 0.063 inch.

Cure Temperature	Tg Dry (E') °C (°F)
7 days @ 25°C (77°F)	67 (153)
90 minutes @ 127°C (260°F)	112 (233)
60 minutes @ 177°C (350°F)	107 (225)
14 Days @ 177°C (350°F)	116 (241)

Coefficient of Thermal Expansion, ASTM E831-05
Cure 7 days @ 25°C (77°F):
CTE 1 (before Tg), µm/m·°C 52.9
CTE 2 (after Tg), µm/m·°C 101.7

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Flammability (15 Second Horizontal Direction)

Sample Dimension: 12.7 mm^3 (0.5 in^3)

Cure Temp.	25°C (77°F)	127°C (260°F)	177°C (350°F)
Cure Time	7 days	90 minutes	60 minutes
Burn Rate, in/min. (cm/min.)	0.18 (0.46)	0.13 (0.33)	0.09 (0.23)
Burn Length, inch (cm)	1.5 (3.8)	1.4 (3.6)	1.3 (3.3)

Fluid Immersion (Percent Absorption)

Sample Dimension: 12.7 mm^3 (0.5 in^3)
Fluid Soak Time: 24 hours @ 77°F (25°C)

Cure Temp.	25°C (77°F)	127°C (260°F)	177°C (350°F)
Cure Time	7 days	90 minutes	60 minutes
TT-S-735 Type III	0.05	0.02	0.03
MIL-PRF-5606 Hydraulic	0.19	0.23	0.21
Skydrol LD4	0.22	0.26	0.19
Distilled Water	0.21	0.13	0.15

Mechanical Properties

Tensile Lap Shear Strength

- Test Method per ASTM D1002 (EN2243-1)
- Metal: 2024T-3 Clad, 1.6mm (0.063") thick
- Etch: Phosphoric Acid Anodized per ASTM D3933
- Cured bondline thickness: 10 mils

Test Temp.	**77°F (25°C)**		
Cure Temp.	25°C (77°F)	177°C (350°F)	177°C (350°F)
Cure Time	7 days	60 minutes	14 days
N/mm^2 (psi)	28.8 (4175)	27.8 (4025)	27.5 (3990)

Compression Performance

- Test Method per ASTM D695 (ISO 604)
- Sample dimension: 12.7mm x 12.7mm x 2.54mm (0.5" x 0.5" x 1.0")
- Sample soak time at elevated test temperature was 10 min. at test temperature prior to testing

Test Temp.	25°C (77°F)			177°C (350°F)	
Cure Temp.	25°C (77°F)	177°C (350°F)	177°C (350°F)	177°C (350°F)	177°C (350°F)
Cure Time	7 days	60 minutes	14 days	60 minutes	14 days
Ultimate Strength, MPa (ksi)	73.5 (10.7)	86.2 (12.5)	98.9 (14.3)	10.9 (1.6)	9.0 (1.3)
Modulus, MPa (ksi)	2733 (396)	2480 (360)	2954 (428)	152 (22)	98 (14)

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Safety Data Sheet (SDS).

PRECAUTIONARY INFORMATION

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.

CAUTION! This material may cause eye and skin irritation or allergic dermatitis. It contains epoxy resins.

WARNING! This material causes eye and skin irritation orallergic 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.

DIRECTIONS FOR USE

Mixing:

1. Mixing the individual adhesive component just prior to use is recommended. The temperature of the separate components prior to mixing is not critical, but should be close to room temperature: 25ºC (77ºF).
2. Combine 100 parts resin to 29.6 parts hardener by weight and mix thoroughly.
3. 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.
4. Mixing smaller quantities will minimize the heat buildup.

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Mixing Procedure:

Mix Type	Mass	Mix Time	Mix Speed
by Centrifuge	≤200 grams	30 seconds	1000 rpm
	400 grams	30 seconds	1500 rpm
by Hand	≤100 grams	2-3 minutes	Slow
	300 grams	5 minutes	Slow

Remark: Centrifuge mixing is the preferred method for mixing. If mixing by hand, slowly mix both components to reduce frothing.

Application:

1. Bonding surfaces should be clean, dry and properly prepared.
2. The bonded parts should be held in contact until the adhesive is set.
3. Handling strength for this adhesive will occur in 24 hours at 25°C (77°F), 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.

Clean-up:

1. It is important to remove excess adhesive from the work area and application equipment before it hardens.
2. Denatured alcohol and many common industrial solvents are suitable for removing uncured adhesive.
3. Consult your solvent supplier's information pertaining to the safe and proper use of solvents.

Disposal:

1. 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

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 contact your Henkel Technical Service Group.

Service Temperature

Service temperature is defined as that temperature at which this adhesive still retains 6.9 MPa (1000 psi) using test method ASTM D1002 and is 121°C (250°F).

STORAGE

Store product in the unopened container in a dry location. Storage information is indicated on the product container labeling.

Optimal Storage: 8 to 28 °C. Storage greater than 28 °C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously recommended. If additional information is required, please contact your local Henkel Representative.

DATA RANGES

The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

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Reference 1.0