

LOCTITE[®] EA E-119HP™

August 2020

PRODUCT DESCRIPTION

LOCTITE[®] EA E-119HP™ provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance	Beige paste ^{LMS}
Components	One component - requires no mixing
Viscosity	Thixotropic
Cure	Heat cure
Application	Bonding

LOCTITE[®] EA E-119HP™ is a thixotropic, non-sag paste that bonds extremely well to carbon composite and aluminium materials. This one-component, no-mix, heat activated formulation develops tough, strong, structural bonds which provide excellent peel resistance and impact strength. When fully cured, the epoxy offers excellent mechanical properties and withstands exposure to a wide variety of solvents and chemicals. LOCTITE[®] EA E-119HP™ is low wicking when exposed to elevated cure temperatures during processing.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.14 to 1.2 ^{LMS}
Infrared Spectroscopy	>96% match to reference ^{LMS}
Viscosity, Brookfield - RVT, 25°C, mPa·s (cP): Spindle 14, speed 10 rpm	65,000 to 120,000 ^{LMS}
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Recommended Curing Conditions

30 minutes @ 121°C

TYPICAL PROPERTIES OF CURED MATERIAL

Cured @ 121 °C for 30 minutes

Physical Properties:

Glass Transition Temperature(Tg) ISO 11359-2, °C	67
Shore Hardness, ISO 868, Durometer D	84
Coefficient of Thermal Expansion, ISO 11359-2, K ⁻¹ :	
Pre Tg	42×10 ⁻⁶
Post Tg	164×10 ⁻⁶
Linear Shrinkage, in/in ASTM D 792,	1.3
Volume Shrinkage, ASTM D 792, %	4.0
Elongation, at break, ISO 527-3, %	4
Tensile Strength, at break, ISO 527-3	N/mm ² 57 (psi) (8,230)
Tensile Modulus, ISO 527-3	N/mm ² 2,100 (psi) (304,600)

Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	33
--	----

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 30 minutes @ 121 °C, tested @ 22 °C, and 0.13 mm gap

Lap Shear Strength, :

Steel (grit blasted)	N/mm ² 28 (psi) (4,100)
Aluminum (abraded)	N/mm ² 17 (psi) (2,440)
Aluminum (anodised)	N/mm ² 2 (psi) (240)
Aluminum (acid etched)	N/mm ² >27 ^{LMS} (psi) (>3,910)
Stainless steel	N/mm ² 19 (psi) (2,820)
Polycarbonate	N/mm ² 2 (psi) (280)
Nylon to Steel (grit blasted)	N/mm ² 3 (psi) (390)
Wood (Pine) to Steel (grit blasted)	N/mm ² 6 (psi) (870)

Block Shear Strength, ISO 13445:

Epoxy	N/mm ² 34 (psi) (4,880)
Glass	N/mm ² 9 (psi) (1,290)

Impact Strength, ISO 9653, J:

Steel (grit blasted)	4
Aluminum (etched)	8

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 30 minutes @ 121 °C

Lap Shear Strength, :

Steel (grit blasted), 0.13 mm gap

Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength	
		500 h	1000 h
Air	87	94	87
Motor oil (10W30)	87	96	88
Unleaded gasoline	87	90	63
Water/glycol 50/50	87	62	70
Water	22	97	90
Acetone	22	94	104
Isopropanol	22	106	99
Salt fog	22	83	77
Condensing Humidity	49	82	67
95% RH	40	93	95

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).

Directions For Use:

1. For high strength structural bonds, remove surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
2. Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
3. For maximum bond strength apply adhesive evenly to both surfaces to be joined.
4. Join the adhesive coated surfaces and allow to cure at 121 °C or above until completely firm. Heat up to 150 °C for 2 hours, will maximize properties.
5. Keep assembled parts from moving during cure. The bond should be allowed to develop full strength before subjecting to any service load.
6. Excessive uncured adhesive can be cleaned up with ketone type solvents.

Loctite Material Specification^{LMS}

LMS dated June 26, 2007. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage

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

Optimal Storage: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °C can adversely affect product properties.

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

Conversions

$$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$$

$$\text{kV/mm} \times 25.4 = \text{V/mil}$$

$$\text{mm} / 25.4 = \text{inches}$$

$$\mu\text{m} / 25.4 = \text{mil}$$

$$\text{N} \times 0.225 = \text{lb}$$

$$\text{N/mm} \times 5.71 = \text{lb/in}$$

$$\text{N/mm}^2 \times 145 = \text{psi}$$

$$\text{MPa} \times 145 = \text{psi}$$

$$\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$$

$$\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$$

$$\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$$

$$\text{mPa}\cdot\text{s} = \text{cP}$$
Note:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:

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.

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.

Reference **N/A**

