

LOCTITE[®] EA E-214HP[™]

Known as Hysol[®] E-214HP[™]
October 2014

PRODUCT DESCRIPTION

LOCTITE[®] EA E-214HP[™] provides the following product characteristics:

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

LOCTITE[®] EA E-214HP[™] is a light paste, industrial grade epoxy adhesive. 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 superior thermal shock resistance, excellent mechanical and electrical properties, and withstands exposure to a wide variety of solvents and chemicals. This product bonds to a wide variety of materials, including metals, glass, ceramics and plastics.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C 1.11

Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):
 Spindle 7, speed 1 rpm, 2,000,000 to 3,000,000^{LMS}
 Spindle 7, speed 2.5 rpm 800,000 to 1,500,000^{LMS}

Flash Point - See SDS

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Glass Transition Temperature ISO 11359-2, °C 120
 Shore Hardness, ISO 868, Durometer D 85
 Elongation, at break, ISO 527-2, % 7
 Tensile Strength, ISO 527-2 N/mm² 31
 (psi) (4,460)

Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm 22

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 2 hours @ 120 °C followed by 4 hours @ 22 °C, 0 gap
 Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm ² 33 (psi) (4,820)
Aluminum (acid etched & abraded)	N/mm ² ≥13.8 ^{LMS} (psi) (≥2,000)
Aluminum (anodised)	N/mm ² 8.4 (psi) (1,220)
Stainless steel	N/mm ² 37 (psi) (5,340)
Polycarbonate	N/mm ² 10 (psi) (1,430)
Nylon	N/mm ² 1.2 (psi) (180)
Wood (Fir)	N/mm ² 5 (psi) (720)

Block Shear Strength, ISO 13445:

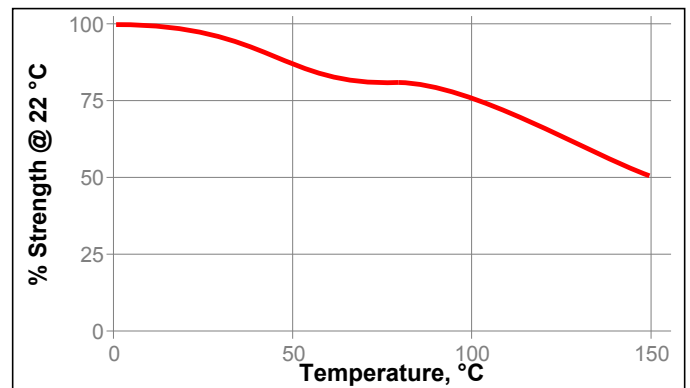
Epoxy	N/mm ² 9.2 (psi) (1,330)
Glass	N/mm ² 23 (psi) (3,370)
PVC	N/mm ² 5.2 (psi) (760)
Acrylic	N/mm ² 3.7 (psi) (530)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 2 hours @ 120 °C followed by 4 hours @ 22 °C, 0.12 to 0.23 mm gap
 Lap Shear Strength, ISO 4587:
 Aluminum (acid etched & abraded)

Hot Strength

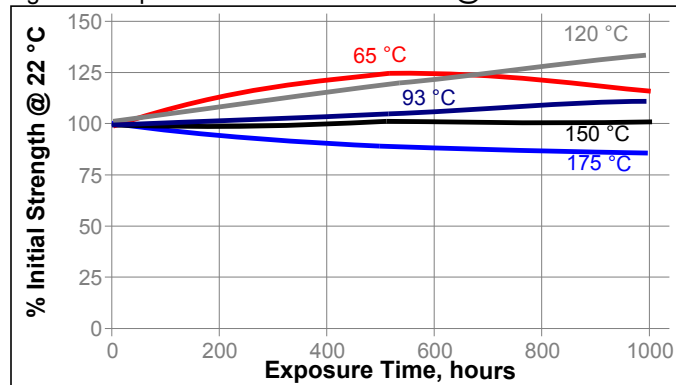
Tested at temperature



Cured for 5 days @ 22 °C
Lap Shear Strength, ISO 4587:
Steel

Heat Aging

Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength	
		500 h	1000 h
Air	87	90	80
Motor oil (10W30)	87	95	95
Unleaded gasoline	87	110	115
Water/glycol 50/50	87	85	80
Water	22	70	70
Acetone	22	110	100
Isopropanol	22	120	115
Salt fog	22	45	60
Condensing Humidity	49	60	50
95% RH	40	75	70

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:

- For high strength structural bonds, remove surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
- Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
- For maximum bond strength apply adhesive evenly to both surfaces to be joined.
- Join the adhesive coated surfaces and allow to cure at 120 °C or above until completely firm. Heat up to 150 °C for 2 hours, will maximize properties.
- Keep parts from moving during cure. Contact pressure is necessary. Maximum shear strength is obtained with a 0.08 to 0.13 mm bond line.
- Excessive uncured adhesive can be cleaned up with ketone type solvents.

Handling precautions

LOCTITE® EA E-214HP™ reacts quickly when exposed to temperatures above 120°C. This product evolves heat (exotherms) during the solidification reaction. Care should be taken to avoid the use of LOCTITE® EA E-214HP™ in sections greater than 6 mm to avoid excessive heat build up during the exothermic reaction, which causes rapid expansion, blistering or cracking of the product.

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

Loctite Material Specification^{LMS}

LMS dated July 3, 2001. 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: below 4°C. Storage greater than 4 °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.

Note:

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Reference 0.1