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Technical Data Sheet

LOCTITE® EA E-60NC

LOCTITE® Hysol®
E-60NC™ July 2024

PRODUCT DESCRIPTION

LOCTITE® EA E-60NC provides the following product characteristics:

Technology	Epoxy
Chemical Type (Resin)	Epoxy
Chemical Type (Hardener)	Amine
Appearance (Resin)	Black liquid
Appearance (Hardener)	Pale yellow liquid
Appearance (Mixture)	Black
Components	Two components - requires mixing
Viscosity	Low
Mix Ratio, (by volume) Resin : Hardener	1 : 1
Mix Ratio, by weight - Resin : Hardener	100 : 86
Cure	Room temperature cure after mixing
Application	Bonding or Potting

LOCTITE® EA E-60NC is a flowable, industrial grade epoxy potting compound with extended work life. Once mixed, the two-component epoxy cures at room temperature to form a rigid, black encapsulant that is non-corrosive to metallic components on PC boards and electronic assemblies. The fully cured epoxy provides excellent environmental and chemical resistance and acts as an electrical insulator. Designed for bonding, potting and encapsulating electrical components which are sensitive to corrosion It is used in electronic applications for component attachment to boards, housing assemblies and potting.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin:

Specific Gravity @ 23 °C	1.1
Viscosity, Brookfield - RVT,25°C,mPa·s (cP):	6,000

Hardener:

Specific Gravity @ 23 °C	0.95
Viscosity, Brookfield - RVT,25°C,mPa·s (cP):	13,000

Mixed:

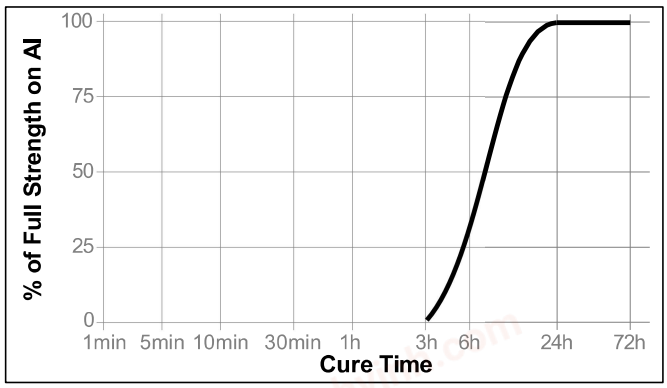
Specific Gravity @ 23 °C	1.0

TYPICAL CURING PERFORMANCE

Working life, minutes	60
Tack Free Time (low humidity), minutes	120

Cure speed vs time

The graph below shows shear strength developed with time on abraded, acid etched aluminum lapshears @23°C with an average bondline gap of 0.08 to 0.23 mm and tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 7days @ 23°C

Physical Properties:

Glass Transition Temperature, ASTM E 1640, °C		70
Shore Hardness, ISO 868, Durometer D:		80
Elongation, ISO 527-2, %		9
Tensile Strength, ISO 527-3	N/mm²	35
	(psi)	(5,100)

Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	20

Adhesive Properties

Cured for 2 hours @ 65°C

Lap Shear Strength :

Aluminum (acid etched)	N/mm²	30
	(psi)	(4,400)

Cured for 12 hours @ 65°C

Lap Shear Strength :

Steel (grit blasted)	N/mm²	30
	(psi)	(4,400)
Aluminum (anodised)	N/mm²	18
	(psi)	(2,600)
Stainless steel	N/mm²	27

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	(psi)	(3,900)
Polycarbonate	N/mm²	13
	(psi)	(1,900)
Nylon	N/mm²	1.9
	(psi)	(280)
Wood (Fir)	N/mm²	11.3
	(psi)	(1,600)

Block Shear Strength, ISO 13445:

PVC	N/mm²	12
	(psi)	(1,700)
ABS	N/mm²	13
	(psi)	(1,900)
Epoxy	N/mm²	29
	(psi)	(4,200)
Acrylic	N/mm²	1
	(psi)	(150)
Glass	N/mm²	32
	(psi)	(4,600)

TYPICAL ENVIRONMENTAL RESISTANCE

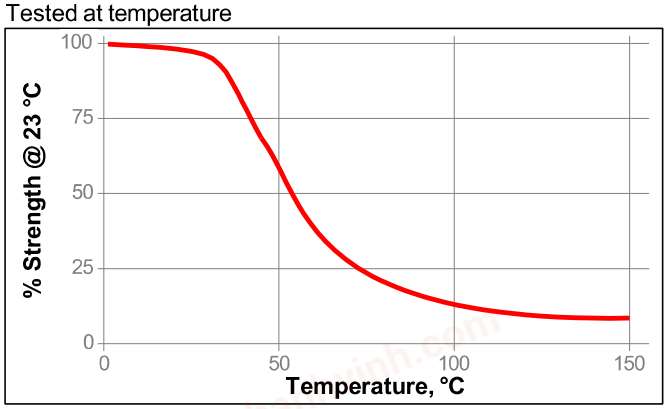
Cured for 12 hours @ 65°C followed by 4 hours @ 23°C

Lap Shear Strength :

Aluminum (acid etched & abraded), 0.1 to 0.2 mm gap

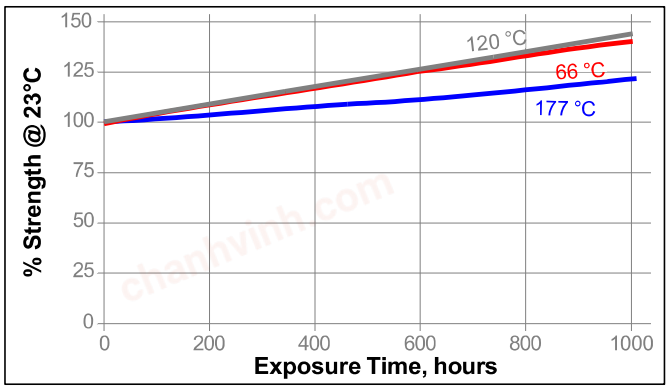
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 23°C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 23 °C.

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Air	87	---	120
Motor oil (10W30)	87	140	145
Unleaded gasoline	87	100	125
Water/glycol 50/50	87	100	110
Salt fog	23	---	80
95% RH	38	---	115
Condensing Humidity	49	---	95
Water	23	---	95
Acetone	23	75	95
Isopropanol	23	90	105

GENERAL INFORMATION

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

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.

Directions for use

1. For best performance part surfaces should be clean and free of grease.
2. For high strength structural bonds, remove surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
3. Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
4. **Dual Cartridges:** To use simply insert the cartridge into the application gun and start the plunger into the cylinders using light pressure on the trigger. Next, remove the cartridge cap and expel a small amount of adhesive to be sure both sides are flowing evenly and freely. If automatic mixing of resin and hardener is desired, attach the mixing nozzle to the end of the cartridge and begin dispensing the adhesive. For hand mixing, expel the desired amount of the adhesive and mix thoroughly. Mix for approximately 15 seconds after uniform color is obtained.
   Bulk Containers: Mix thoroughly by weight or volume in the proportions specified in Product Description section. Mix vigorously, approximately 15 seconds after uniform color is obtained.
5. For maximum bond strength apply adhesive evenly to both surfaces to be joined.
6. Application to the substrates should be made within 60 minutes. Larger quantities and/or higher temperatures will reduce this working time.

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7. Join the adhesive coated surfaces and allow to cure at 25 °C for 24 hours for high strength. Heat up to 93 °C, will speed curing.
8. Keep parts from moving during cure. Contact pressure is necessary. Maximum shear strength is obtained with a 1 to 2 mm bond line.
9. Excessive uncured adhesive can be cleaned up with ketone type solvents.

Storage
Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.
Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or 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 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 Henkel representative.

Product Specification
The technical data contained herein are intended as reference only and are not considered specifications for the product. Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

Approval and Certificate
Please contact Henkel representative for related approval or certificate of this product.

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.

Temperature/Humidity Ranges: 23 °C / 50% RH = 23±2 °C / 50±5% RH

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

Disclaimer
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