Technical Data Sheet

LOCTITE® EA E-40HT™

August 2020

PRODUCT DESCRIPTION

LOCTITE® EA E-40HT™ provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (Resin)	Off-white
Appearance (Hardener)	Amber[LMS]
Appearance (Mixture)	Off-white
Components	Two components - requires mixing
Viscosity	Medium
Mix Ratio, (by volume) Resin : Hardener	2 : 1
Mix Ratio, by weight - Resin : Hardener	100 : 43
Cure	Room temperature cure after mixing
Application	Bonding

LOCTITE® EA E-40HT™ is a high viscosity, industrial grade epoxy adhesive with extended work life. Once mixed, the two component epoxy cures at room temperature to form a tough, off-white bondline with excellent resistance to shear and impact forces. This product offers elevated temperature resistance, excellent mechanical and electrical properties, and withstands exposure to a wide variety of solvents and chemicals. LOCTITE® EA E-40HT™ develops strong, tough bonds on aluminum, steel and other metals, as well as glass, ceramics and plastics.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin:

Specific Gravity @ 25 °C	1.17
Viscosity, Cone & Plate, mPa·s (cP):	
Cone CP50-1 @ shear rate 100 s^{-1}	107,000
Flash Point - See SDS	

Hardener:

Specific Gravity @ 25 °C	1.01
Viscosity, Cone & Plate, mPa·s (cP):	
Cone CP50-1 @ shear rate 100 s^{-1}	6,200
Flash Point - See SDS	

Mixed Properties:

Specific Gravity @ 25 °C	1.13
Viscosity, Cone & Plate, mPa·s (cP):	
Cone CP50-1 @ shear rate 100 s^{-1}	16,000
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Fixture Time

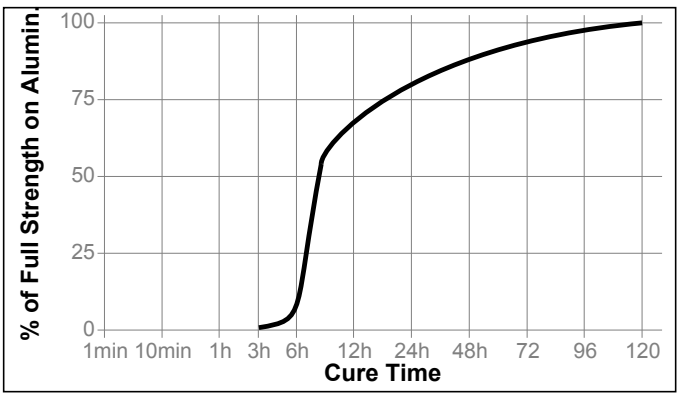
Fixture time is defined as the time to develop a shear strength of 0.1 N/mm² .

Fixture Time, ISO 4587, minutes:

Steel (grit blasted), @ 22 °C	165 to 180

Cure Speed vs. Time

The graph below shows shear strength developed with time on abraded, acid etched aluminum lapshears @ 25 °C with an average bondline gap of 0.1 to 0.2 mm and tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured @ 22 °C for 5days

Physical Properties:

Glass Transition Temperature(Tg) ISO 11359-2, °C	57
Shore Hardness, ISO 868, Durometer D	79

Electrical Properties:

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

Cured @ 22 °C for 3days

Physical Properties:

Elongation, at break, ISO 527-3, %	2.2	
Tensile Strength, at break, ISO 527-3	N/mm² (psi)	30 (4,300)
Tensile Modulus, ISO 527-3	N/mm² (psi)	1,860 (269,200)

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 5days @ 22 °C and 0.13 mm gap

Lap Shear Strength, :

Steel (grit blasted)	N/mm²	28
	(psi)	(4,030)
Aluminum (abraded)	N/mm²	26
	(psi)	(3,740)
Aluminum (anodised)	N/mm²	23
	(psi)	(3,350)
Stainless steel	N/mm²	24
	(psi)	(3,510)
Polycarbonate	N/mm²	3.3
	(psi)	(480)
Nylon	N/mm²	1.9
	(psi)	(280)
Wood (Pine)	N/mm²	8
	(psi)	(1,150)

Block Shear Strength, ISO 13445:

PVC	N/mm²	15
	(psi)	(2,180)
ABS	N/mm²	2.7
	(psi)	(390)
Epoxy	N/mm²	31
	(psi)	(4,520)
Acrylic	N/mm²	2.2
	(psi)	(320)
Glass	N/mm²	11
	(psi)	(1,570)

Impact Strength, ISO 9653, J:

Steel (grit blasted)	8
Aluminum (etched)	14

Cured for 2 hours @ 65 °C

Lap Shear Strength, :

Aluminum (acid etched) 0.13 mm gap	N/mm²	>27.5[LMS]
	(psi)	(>3,988)

TYPICAL ENVIRONMENTAL RESISTANCE

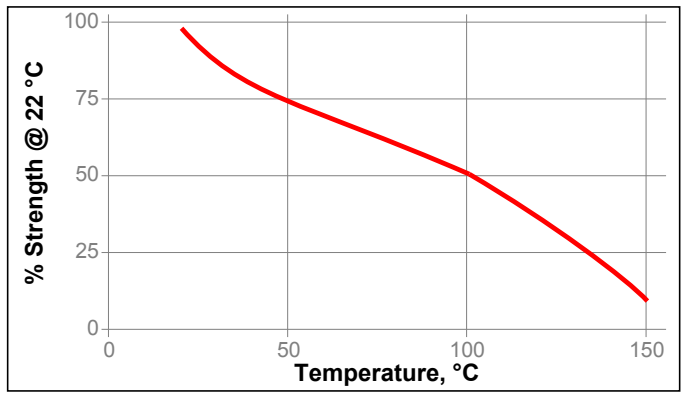
Cured for 5 days @ 22 °C

Lap Shear Strength, :

Steel (grit blasted), 0.13 mm gap

Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °C

Temperature, °C	% of initial strength 1000h
66	120
93	125
120	135
150	130
177	130

Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Air	87	124	117
Motor oil (10W30)	87	119	122
Unleaded gasoline	87	113	24
Water/glycol 50/50	87	76	98
Water	22	102	91
Acetone	22	106	105
Isopropanol	22	112	82
Salt fog	22	85	41
Condensing Humidity	49	85	86
95% RH	40	105	103

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. **Dual Cartridges:** To begin using a new cartridge,

remove cartridge cap and dispense a small amount of adhesive, making sure both parts A&B are extruding. Attach nozzle and dispense approximately 25 to 50mm, before applying onto part to be bonded. Partially used cartridges can be stored with the mixing nozzle attached. To reuse, remove and discard old nozzle, attach the new nozzle, dispense approximately 25 to 50mm, before applying onto part to be bonded.

Hand Mixing: Combine Part A & Part B in the correct ratio and mix thoroughly. Be sure to scrape both the sides and bottom of mixing container. Mix for approximately 15 seconds after uniform color is obtained. Heat build-up during or after mixing is normal. Do not mix quantities greater than 4kg as excessive exotherm or heat build up will develop. Mixing smaller amounts will minimize heat build-up

Bulk Containers: Normally material is dispensed through volumetric metered mixing equipment, attached to static mix nozzles. It may also be mixed by weight or volume as described above.

4. For maximum bond strength apply adhesive evenly to both surfaces to be joined.
5. Application to the substrates should be made within 40 minutes. Larger quantities and/or higher temperatures will reduce this working time.
6. Join the adhesive coated surfaces and allow to cure. Higher temperatures will speed up curing.
7. Keep assembled parts from moving during cure. The bond should be allowed to develop full strength before subjecting to any service load.
8. Excessive uncured adhesive can be cleaned up with ketone type solvents.

Loctite Material Specification[LMS]

LMS dated July 23, 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: 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 Technical Service Center or Customer Service Representative.

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

Note:
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Reference N/A

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