Technical Data Sheet

LOCTITE® EA 9464

Known as Hysol 9464
September 2018

PRODUCT DESCRIPTION

LOCTITE® EA 9464 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (Resin)	White opaque paste
Appearance (Hardener)	Black opaque paste
Appearance (Mixture)	Gray opaque paste
Viscosity	Thixotropic
Components	Two part - Resin & Hardener
Mix Ratio, (by volume) Resin : Hardener	1 : 1
Mix Ratio, by weight - Resin : Hardener	100 : 100
Cure	Room temperature cure after mixing
Application	Bonding
Specific Benefits	• Shortened pot life • Fast handling strength • Non-sag slump resistance • Easy to mix and use • Good tensile shear strength • Good peel strength • Heat accelerated cure
Key Substrates	Metals , Phenolic plastics, Polyester , Hard boards & forestry products, Ceramics, Rubbers, Masonry materials and other construction materials

LOCTITE® EA 9464 is a faster cure version of Loctite® EA 9461™. The fixture time and pot life are reduced by approximately 50% while maintaining most of the performance of Loctite® EA 9461™.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin Properties

Specific Gravity @ 25 °C	1.35
Viscosity, DIN 54453, mPa·s (cP):	
Shear rate 10 s^{-1}	138,000
Shear rate 100 s^{-1}	40,000
Thixotropic Index	3.5
Flash Point - See SDS	

Hardener Properties

Specific Gravity @ 25 °C	1.3
Viscosity, DIN 54453, mPa·s (cP):	
Shear rate 10 s^{-1}	55,000
Shear rate 100 s^{-1}	35,000
Thixotropic Index	1.6
Flash Point - See SDS	

Mixed Properties

Pot Life @ 22°C, minutes:	
100 g mass	15 to 20

TYPICAL CURING PERFORMANCE

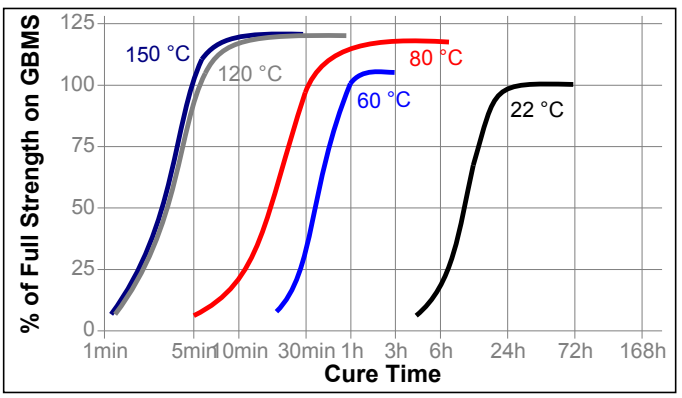
Fixture Time

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

Fixture Time, mixed, @ 22°C, minutes	180

Cure Speed vs. Time/Temperature

LOCTITE® EA 9464 will achieve handling strength in 3 to 4 hours at room temperature (note: this can vary with different bond configurations and ambient temperatures). Elevated temperatures may be used to accelerate the cure. The following graph indicates development of shear strength on mild steel (grit blasted) lapshears as a function of time and temperature tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 7days @ 22°C, 1.2 mm thick samples.

Physical Properties :

Coefficient of Thermal Conductivity, ISO 8302, W/(m-K)		0.6
Shore Hardness, ISO 868, Durometer D		80
Glass Transition Temperature, ASTM D 1640, °C		50
Compressive Strength, ISO 604	N/mm²	50
	(psi)	(7,300)
Tensile Modulus , ISO 527-2	N/mm²	2,900
	(psi)	(420,610)

Electrical Properties :

Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	$4.4 / 3.1\times10^{-3}$
1 MHz	$3.8 / 4.7\times10^{-2}$
10 MHz	$3.5 / 6.2\times10^{-2}$
Surface Resistivity, IEC 60093, Ω	1.7×10^{15}
Volume Resistivity, IEC 60093, Ω·cm	5.8×10^{14}

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 7days @ 22°C

Lap Shear Strength , ISO 4587:

Mild steel (grit blasted)	N/mm²	22
	(psi)	(3,200)
Aluminum (abraded) (Silicon Carbide Paper, A166 grit, P400A grade)	N/mm²	18
	(psi)	(2,600)
Aluminum (etched in acidic ferric sulphate)	N/mm²	22
	(psi)	(3,200)
Stainless steel	N/mm²	18
	(psi)	(2,600)
Brass	N/mm²	9
	(psi)	(1,300)
Zinc dichromate	N/mm²	15
	(psi)	(2,200)
Galvanized Steel (Hot Dipped)	N/mm²	20
	(psi)	(2,900)
Polycarbonate	N/mm²	4
	(psi)	(550)
ABS	N/mm²	5
	(psi)	(700)
GRP (Polyester resin matrix)	N/mm²	5
	(psi)	(680)

180° Peel Strength, ISO 8510-2:

Mild steel (grit blasted)	N/mm	10.5
	(lb/in)	(60)
Aluminum (acid etched)	N/mm	7
	(lb/in)	(40)

IZOD Impact Resistance , ISO 9653 J/m² :

Grit Blasted Mild Steel	9.5

TYPICAL ENVIRONMENTAL RESISTANCE

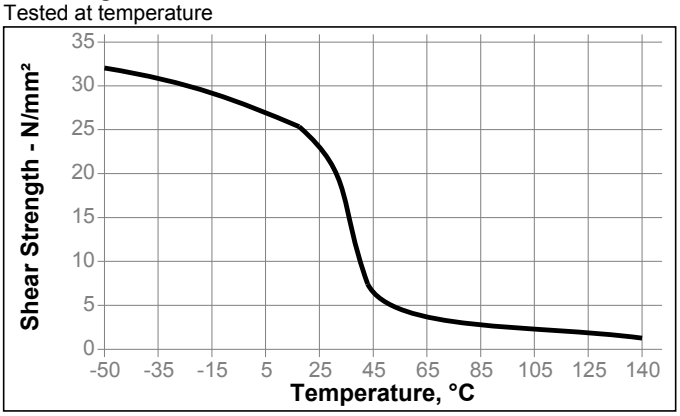
Cured for 7days @ 22°C

Lap Shear Strength , ISO 4587:

Mild Steel (grit blasted)

Hot Strength

Tested at temperature



Heat Aging

Aged under conditions indicated and tested at 22 °C.

Temperature	% Initial strength retained after		
	500 h	1,000 h	3,000 h
50 °C	150	115	140
80 °C	130	125	145
100 °C	125	130	135
120 °C	130	135	135
150 °C	150	140	140

Chemical/Solvent Resistance

Immersed in conditions indicated and tested at 22 °C.

		% of initial strength		
Environment	°C	500 h	1000 h	3000 h
Motor oil	22	100	100	100
Unleaded gasoline	22	95	75	60
Water/glycol 50/50	87	60	60	50
Sodium hydroxide, 4%	22	50	55	50
98% RH	40	65	50	45
Water	21	80	75	70
Acetone	22	85	35	15
Acetic Acid, 10%	22	80	70	45
Salt water solution, 7.5%	22	90	85	80

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).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

Directions for use

1. For best performance surfaces for bonding should be clean, dry and free of grease. For high strength structural bonds, special surface treatments can increase the bond strength and durability.
2. To use, resin and hardener must be blended. Product can be applied directly from dual cartridges by dispensing through the mixer head supplied. Discard the first 3 to 5 cm of bead dispensed. Using bulk containers, mix thoroughly by weight or volume in the proportions specified in the Product Description Matrix. For hand mixing, weigh or measure out the desired amount of resin and hardener and mix thoroughly. Mix approximately 15seconds after uniform color is obtained.
3. It is recommended that this product is not mixed and cured in bulk quantities of greater than 1 kg as excessive heat build-up can occur. Mixing smaller quantities will minimize the heat build-up.
4. Apply the adhesive as quickly as possible after mixing to one surface to be joined. For maximum bond strength apply adhesive evenly to both surfaces. Parts should be assembled immediately after mixed adhesive has been applied.
5. For working life please see section 'Typical Properties of Uncured Material'. Higher temperatures and larger quantities will shorten this working time.
6. Keep the assembled parts from moving during cure. The joint should be allowed to develop full strength before subjecting to any service loads.
7. Excess uncured adhesive can be wiped away with organic solvent (e.g. Acetone).
8. After use and before adhesive hardens, mixing and application equipment should be cleaned with hot soapy water.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

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.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb/F
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
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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Reference N/A