Technical Data Sheet

LOCTITE® EA 9492

November 2014

PRODUCT DESCRIPTION

LOCTITE® EA 9492 provides the following product characteristics:

Technology	Epoxy
Chemical type (resin)	Epoxy
Chemical type (hardener)	Modified amine
Appearance (resin)	White opaque paste
Appearance (hardener)	Grey, opaque liquid
Appearance (mixed)	White opaque paste
Components	Two part - Resin & Hardener
Mix Ratio, (by weight) resin : hardener	2 : 1
Mix Ratio, (by volume) resin : hardener	100 : 50
Cure	Room temperature cure after mixing
Application	Bonding
Specific benefits	• Very low outgassing • High temperature resistance • Excellent solvent resistance

LOCTITE® EA 9492 is a high temperature resistant, two component epoxy adhesive. It is a lower viscosity version of Hysol 9491 and retains the high performance features of this product. It is a general purpose adhesive that bonds and repairs a wide variety of materials.

Fully cured LOCTITE® EA 9492 bonds offer superior thermal shock resistance, mechanical, electrical and impact resistant properties.

Typical properties of uncured material

Resin	
Specific gravity @ 25°C	1.51
Viscosity, Brookfield - RVT, 25°C , mPa·s (cP):	
Spindle 6, speed 5 rpm,	50,000 to 120,000
Viscosity, DIN 54453, mPa·s (cP):	
Shear rate $10s^{-1}$	45,000
Shear rate $100s^{-1}$	34,000
Flash point - see SDS	
Hardener	
Specific gravity @ 25°C	1.52
Viscosity, Brookfield - RVT, 25°C , mPa·s (cP):	
Spindle 7, speed 50 rpm,	20,000 to 50,000
Viscosity, DIN 54453, mPa·s (cP):	
Shear rate $10s^{-1}$	27,000
Shear rate $100s^{-1}$	20,000
Flash point - see SDS	
Mixed properties	
Pot life @ 22°C, minutes 100g mass	15

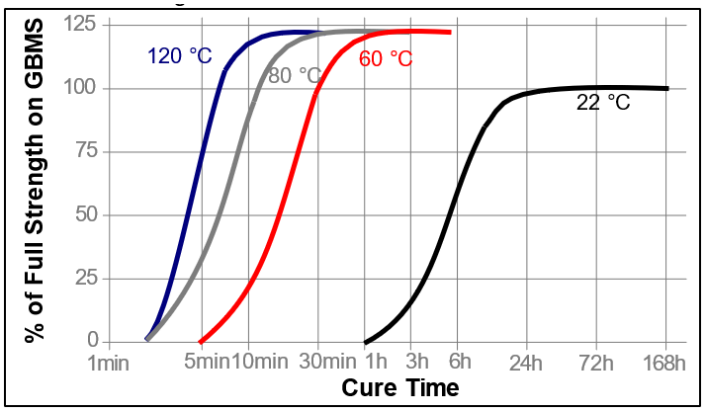
Typical curing performance

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

Fixture time, mixed, @ 22°C, minutes	75

Cure speed vs. time/temperature

LOCTITE® EA 9492 develops complete cure within 3 days at room temperature. 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 7 days @ 22°C, 1.2mm thick samples

Physical properties:		
Coefficient of thermal expansion, ISO 11359-2, K^{-1}: Temperature range: -40°C to 80°C		63×10^{-6}
Coefficient of thermal conductivity ISO 8302, W/(m·K)		0.3
Shore Hardness, ISO 868, Durometer D		80
Elongation, ISO 527-3, %		0.8
Tensile strength, ISO 527-2	N/mm^2 (psi)	31 (4,500)
Tensile Modulus, ISO 527-3	N/mm^2 (psi)	6,700 (970,000)
Compressive strength, ISO 604	N/mm^2 (psi)	80 (12,000)
Electrical Properties:		
Dielectric breakdown strength, IEC 60243-1, kV/mm		17.5
Dielectric Constant / Dissipation Factor, IEC 60250: 1 kHz		6.1 / 0.09

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 7 days @22°C

Lap Shear Strength, ISO 4587:

Mild steel (grit blasted)	N/mm^2 (psi)	20 (2,900)
Aluminum (abraded) (Silicon Carbide Paper, A166 grit, P400A grade)	N/mm^2 (psi)	14 (2,000)
Aluminum (acid etched)	N/mm^2 (psi)	15 (2,200)
Stainless steel	N/mm^2 (psi)	12 (1,700)
Brass	N/mm^2 (psi)	1 (150)
Galvanized Steel (Hot Dipped)	N/mm^2 (psi)	2.2 (320)
Zinc dichromate	N/mm^2 (psi)	6 (870)
Polycarbonate	N/mm^2 (psi)	5.3 (770)
ABS	N/mm^2 (psi)	3 (440)
GRP (Polyester Resin Matrix)	N/mm^2 (psi)	5 (730)
PVC	N/mm^2 (psi)	1.9 (280)
Glass fiber reinforced epoxy	N/mm^2 (psi)	7 (1.000)
180° Peel strength ISO 8510-2: Mild steel (grit blasted)	N/mm (lb/in)	1.6 (9.1)
IZOD impact resistance, ISO 9653, J/m^2 : Mild Steel (grit blasted)		3.7

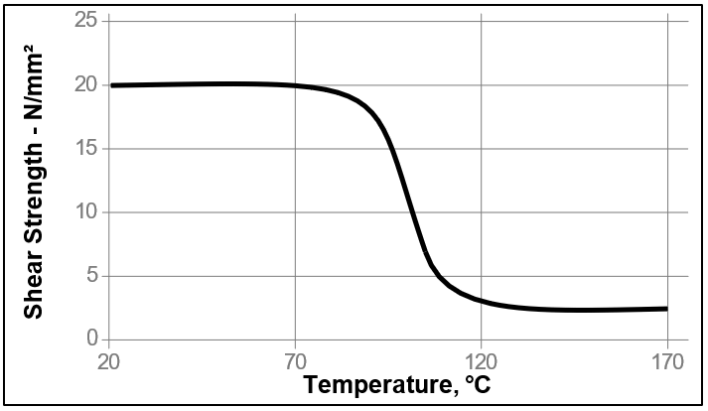
Typical environmental resistance

Cured for 7 days @22°C

Lap shear strength:

Mild steel (grit blasted)

Hot Strength
Tested at temperature



Heat aging
Cured for 5 days @22°C, stored at temperatures indicated and tested at 22°C

Temperature	% Initial strength retained after			
	100 h	500 h	1000 h	3000 h
100 °C	125	140	140	130
125 °C	140	135	130	135
150 °C	120	120	120	110
180 °C	130	90	65	30

Chemical/solvent resistance
Cured for 5 days @22°C, immersed in conditions indicated and tested at 22°C

		% of initial strength		
Environment	°C	500 h	1000 h	3000 h
Motor oil	22	115	115	115
Unleaded gasoline	22	115	115	115
50% Water Glycol	87	130	110	105
4% Sodium hydroxide/ water	22	125	110	115
98% RH	40	105	105	105
Water	60	130	120	120
Water	90	95	85	85
Acetone	22	80	70	65
Acetic acid, 10%	22	105	95	95
7.5% Salt water solution	22	105	100	100

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 Material Safety Data Sheet.

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 15 seconds after uniform color is obtained.
3. It is recommended that this product is not mixed and cured in bulk quantities of greater than 0.5 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. Excess uncured adhesive can be wiped away with organic solvent (e.g. acetone).
7. Keep the assembled parts from moving during cure. The joint should be allowed to develop full strength before subjecting to any service loads.
8. After use and before adhesive hardens, mixing and application equipment should be cleaned with hot soapy water.

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

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

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

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Reference 2