

LOCTITE®

Rua das Cavadas, 190
4425-710 Folgosa - Maia
Tel: +351 229 619 460
Fax: +351 229 619 469

www.barbocol.pt

DISTRIBUIÇÃO

Technical Data Sheet

LOCTITE® EA 9492

Known as Hysol 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 (Mixture)	White opaque paste
Components	Two part - Resin & Hardener
Mix Ratio, (by volume) Resin : Hardener	2 : 1
Mix Ratio, by weight - 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 Properties

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 10 s ⁻¹	45,000
Shear rate 100 s ⁻¹	34,000
Flash Point - See SDS	

Hardener Properties

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 10 s ⁻¹	27,000
Shear rate 100 s ⁻¹	20,000

Flash Point - See SDS

Mixed Properties

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

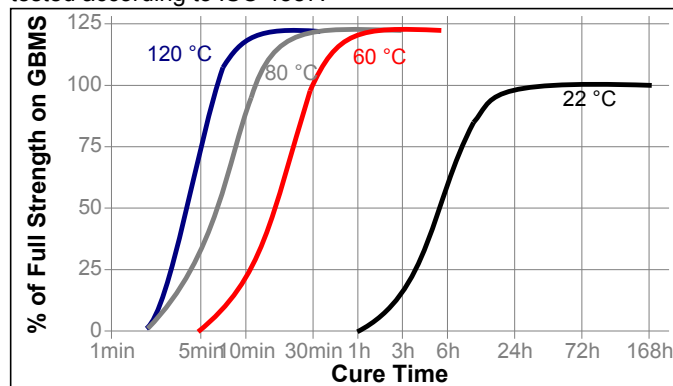
TYPICAL CURING PERFORMANCE Fixture Time

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

Fixture Time, mixed, @ 22 °C, minutes	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 7days @ 22°C, 1.2 mm 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 527-3	N/mm ² 31 (psi) (4,500)
Tensile Modulus , ISO 527-3	N/mm ² 6,700 (psi) (970,000)
Compressive Strength, ISO 604	N/mm ² 80 (psi) (12,000)

Electrical Properties :

Dielectric Breakdown Strength IEC 60243-1, 17.5 kV/mm	
Dielectric Constant / Dissipation Factor, IEC 60250: 1 kHz	6.1 / 0.09

TYPICAL PERFORMANCE OF CURED MATERIAL**Adhesive Properties**

Cured for 7days @ 22°C

Lap Shear Strength , ISO 4587:

Mild steel (grit blasted)	N/mm ² 20 (psi) (2,900)
Aluminum (abraded) (Silicon Carbide Paper, A166 grit, P400A grade)	N/mm ² 14 (psi) (2,000)
Aluminum (acid etched)	N/mm ² 15 (psi) (2,200)
Stainless Steel	N/mm ² 12 (psi) (1,700)
Brass	N/mm ² 1 (psi) (150)
Galvanized Steel (Hot Dipped)	N/mm ² 2.2 (psi) (320)
Zinc dichromate	N/mm ² 6 (psi) (870)
Polycarbonate	N/mm ² 5.3 (psi) (770)
ABS	N/mm ² 3 (psi) (440)
GRP (Polyester resin matrix)	N/mm ² 5 (psi) (730)
PVC	N/mm ² 1.9 (psi) (280)
Glass Fiber Reinforced Epoxy	N/mm ² 7 (psi) (1,000)

180° Peel Strength ISO 8510-2:

Mild steel (grit blasted)	N/mm 1.6 (lb/in) (9.1)
---------------------------	---------------------------

IZOD Impact Resistance , ISO 9653, J/m² :

Mild Steel (grit blasted) 3.7

TYPICAL ENVIRONMENTAL RESISTANCE

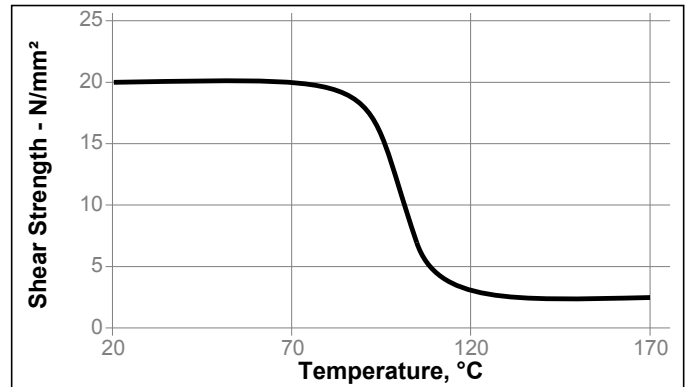
Cured for 7days @ 22°C

Lap Shear Strength :

Mild steel (grit blasted)

Hot Strength

Tested at temperature:

**Heat Aging**

Cured for 5days @ 22°C Stored at temperatures indicated and tested at 22°C

Temperature	% Initial strength retained after			
	100 h	500 h	1,000 h	3,000 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 5days @ 22°C Immersed in conditions indicated and tested at 22 °C

Environment	°C	% of initial strength		
		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 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 Safety Data Sheet, (SDS).

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.

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.

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.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\text{N} \times 0.225 = \text{lb/F}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{psi} \times 145 = \text{N/mm}^2$
 $\text{MPa} = \text{N/mm}^2$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$



Disclaimer

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, or Henkel Canada Corporation, the following disclaimer is applicable:

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.2

