

Technical data sheet



Product: 9497

Manufacturer: HENKEL KGAA

Product group: KLEBSTOFF

Article group: 2-K KLEBSTOFF

Download: 21.05.2024

LOCTITE® EA 9497™ (HYSOL 9497)

This data sheet was provided to you by Tewipack Uhl GmbH. The company tewipack Uhl GmbH assumes no responsibility for the topicality and the Accuracy of the information contained. The properties of the products can vary due to various influences such as composition and condition of the Substrate, impurities in or on the substrate, temperature and humidity at the Change storage and environmental conditions during use. Using this product in combination with other material, the customer is responsible for to check through our own tests whether the product is suitable for the planned combination and whether this combination delivers the expected results

Tewipack Uhl GmbH
Industriestraße 15
D-75382 Althengstett

Telephone:
+49(0)7051/9297-0
Fax:
+49(0)7051/9297-99

E-Mail:
info@tewipack.de
Website:
www.tewipack.de

Managing director:
Alexander Uhl,
Michael Uhl
HRB 330424
Amtsgericht
Stuttgart

Bank details:
Sparkasse
Sindelfingen
Pforzheim
Calw
BLZ 666 500
85
Konto 17 787

Commerzbank
Sindelfingen
BLZ 603 400 71
Konto 8 001 166

Vereinigte
Volksbank AG
Böblingen
BLZ 603 900 00
Konto 80 089
003

Postbank
Stuttgart
BLZ 600 100
70
Konto 146
294 708

LOCTITE® EA 9497™

Known as Hysol 9497
October 2014

PRODUCT DESCRIPTION

LOCTITE® EA 9497™ provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (Resin)	White liquid ^{LMS}
Appearance (Hardener)	Gray liquid ^{LMS}
Components	Two component - requires mixing
Mix Ratio, by volume - Resin : Hardener	2 : 1
Mix Ratio, by weight - Resin : Hardener	100 : 50
Cure	Room temperature cure
Application	Bonding

LOCTITE® EA 9497™ is a medium viscosity, two component, room temperature curing epoxy adhesive that bonds a wide variety of materials making it suitable as a general purpose adhesive. LOCTITE® EA 9497™ is ideal for heat dissipation applications such as bonding metal sheets for high heat transfer and potting electrical components. It is good for high compression strength applications, as well as high Tg applications with demanding hot strength requirements.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin Properties

Specific Gravity @ 25 °C 2.05 to 2.13^{LMS}

Casson Viscosity, Cone & Plate Rheometer, Pa·s:
Temperature: 25 °C, Shear Rate: 0 to 40 s⁻¹ 5 to 16^{LMS}

Flash Point - See SDS

Hardener Properties

Specific Gravity @ 25 °C 2.02 to 2.1^{LMS}

Casson Viscosity, Cone & Plate Rheometer, Pa·s:
Temperature: 25 °C, Shear Rate: 0 to 40 s⁻¹ 8 to 24^{LMS}

Flash Point - See SDS

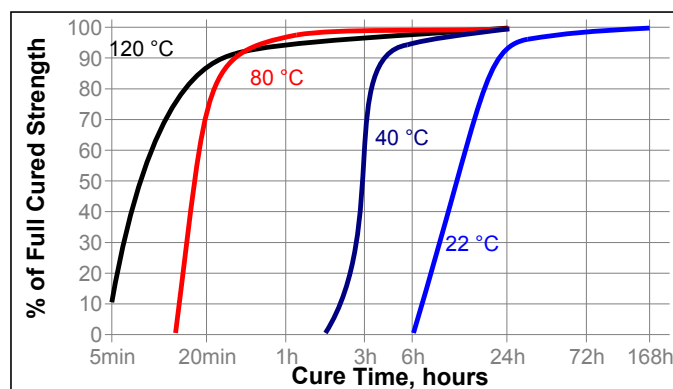
Mixed Properties

Pot Life @ 25 °C, minutes:
267 g resin / 133 g hardener 165 to 255^{LMS}

TYPICAL CURING PERFORMANCE

Cure Speed vs. Time/Temperature

The rate of cure will depend on the ambient temperature. The graph below shows the shear strength developed with time on grit blasted steel lap shears at different temperatures and tested according to ISO 4587.



Fixture Time

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

Fixture Time, ISO 4587, @ 22 °C, hours 8

TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 7 days @ 22 °C

Physical Properties :

Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	1.4
Coefficient of Thermal Expansion ISO 11359-2, K ⁻¹ :	
Below Tg	50×10 ⁻⁶
Above Tg	104×10 ⁻⁶
Linear Shrinkage, ISO 1675, %	0.73
Tensile Strength, ISO 37	N/mm ² 52.6 (psi) (7,640)
Tensile Modulus, ISO 37	N/mm ² 2,420 (psi) (351,000)
Compressive Strength	N/mm ² 112.5 (psi) (16,300)
Elongation, ISO 37, %	2.9
Shore Hardness, ISO 868, Durometer D	83
Glass Transition Temperature, ISO 11359-2, °C	67

Electrical Properties:

Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	5.5 / 0.038
1 MHz	5.0 / 0.001
10 MHz	2.5 / 0.983



Volume Resistivity, IEC 60093, $\Omega \cdot \text{cm}$ 41×10^{15}
 Surface Resistivity, IEC 60093, Ω 75×10^{15}

Cured for 24 hours @ 22 °C followed by 30 minutes @ 80 °C.

Physical Properties :

Glass Transition Temperature ISO 11359-2, °C 97

Cured for 24 hours @ 22 °C followed by 15 minutes @ 120 °C.

Physical Properties :

Glass Transition Temperature ISO 11359-2, °C 116

TYPICAL PERFORMANCE OF CURED MATERIAL

Cured for 7 days @ 22 °C

Lap Shear Strength , ISO 4587:

Mild Steel (grit blasted)	N/mm ²	20
	(psi)	(2,900)
Stainless Steel	N/mm ²	9
	(psi)	(1,300)
Aluminum	N/mm ²	7
	(psi)	(1,000)
Aluminum (abraded)	N/mm ²	15
	(psi)	(2,170)
Brass	N/mm ²	5
	(psi)	(750)
Copper	N/mm ²	5
	(psi)	(750)
Zinc dichromate	N/mm ²	5
	(psi)	(750)
ABS	N/mm ²	6
	(psi)	(900)
Polycarbonate	N/mm ²	4
	(psi)	(700)
Polymethylmethacrylate	N/mm ²	1
	(psi)	(150)
Glass Fiber Reinforced Epoxy	N/mm ²	8
	(psi)	(1,200)
Hardwood (Teak)	N/mm ²	12
	(psi)	(1,700)
Softwood (Deal)	N/mm ²	8
	(psi)	(1,200)

TYPICAL ENVIRONMENTAL RESISTANCE

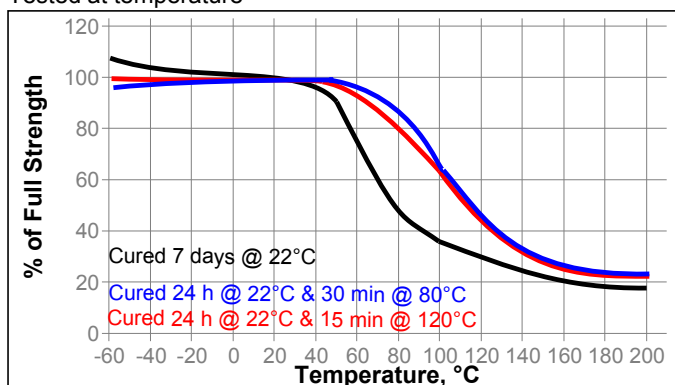
Cured for 7 days @ 22 °C

Lap Shear Strength , ISO 4587:

Mild Steel (grit blasted)

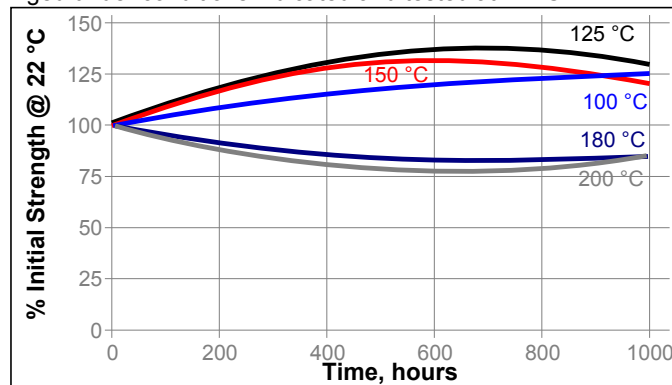
Hot Strength

Tested at temperature



Heat Aging

Aged under conditions indicated and tested at 22 °C.



Chemical/Solvent Resistance

Aged under conditions indicated and tested at 22 °C

Environment	°C	% of initial strength	
		500 h	1000 h
Water	60	100	110
Water	90	135	135
Motor oil	40	105	105
Acetone	22	115	110
98% RH	40	125	120
Unleaded gasoline	22	90	95
Sodium Chloride, 7.5%	22	105	100
Water/glycol 50/50	87	110	120
Acetic Acid, 10%	22	85	100
Sodium hydroxide, 4%	22	105	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 Material Safety Data Sheet, (MSDS).

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. 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. Do not mix quantities greater than 4 kg in mass 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.

Americas
+860.571.5100

Europe
+49.89.320800.1800

Asia
+86.21.2891.8863

For the most direct access to local sales and technical support visit: www.henkel.com/industrial

5. Working life of the mixed adhesive is 3 to 4 hours @ 22 °C. Higher temperature 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.

Loctite Material Specification^{LMS}

LMS dated November 22, 2007 (Resin) and LMS dated December 07, 2007 (Hardener). 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 Loctite 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

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

Disclaimer

Note:

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, Resin Technology Group, Inc., 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 0.2

Americas
+860.571.5100

Europe
+49.89.320800.1800

Asia
+86.21.2891.8863

For the most direct access to local sales and technical support visit: www.henkel.com/industrial