

LOCTITE[®] EA 9497™

Known as Hysol 9497 October 2014

PRODUCT DESCRIPTION

LOCTITE[®] EA 9497[™] provides the following product characteristics:

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

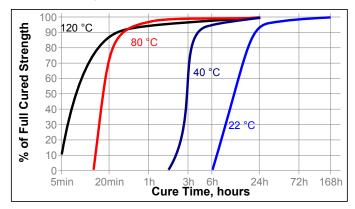
LOCTITE[®] EA 9497[™] is a medium viscosity, two component. room temperature curing epoxy adhisive that bonds a wide variety of materials making it suitable as a general purpose adhesive. LOCTITE[®] EA 9497[™] is ideal for heat dissipation applications such as bonding metal sheets for high heat transfer 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. 8

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

TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 7 days @ 22 °C **Physical Properties** : Coefficient of Thermal Conductivity, ISO 8302, 1.4 W/(m-K)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/mm² 52.6 (psi) (7,640)Tensile Modulus, ISO 37 N/mm² 2,420 (351,000) (psi) **Compressive Strength** N/mm² 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, Ω·cm	41×10 ¹⁵
Surface Resistivity, IEC 60093, Ω	75×10¹⁵
Cured for 24 hours @ 22 °C followed by 30 minu Physical Properties : Glass Transition Temperature ISO 11359-2, °C	utes @ 80 °C. 97
Cured for 24 hours @ 22 °C followed by 15 min	

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Physical Properties : Glass Transition Temperature ISO 11359-2, °C

TYPICAL PERFORMANCE OF CURED MATERIAL

Cured for 7 days @ 22 °C

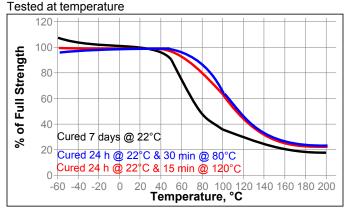
Lap Shear Strength , ISO 4587: Mild Steel (arit blasted)

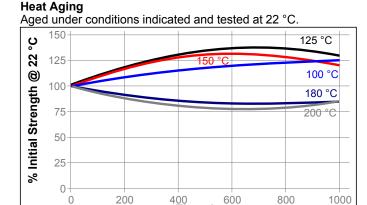
Mild Steel (grit blasted)	N/mm²	
Stainless Steel	N/mm²	(2,900) 9 (1,300)
Aluminum	N/mm²	7
Aluminum (abraded)	N/mm²	
Brass	N/mm²	
Copper	(psi) N/mm²	. ,
Zinc dichromate	(psi) N/mm²	. ,
ABS	(psi) N/mm²	. ,
Polycarbonate	(psi) N/mm²	. ,
rolycarbonate	(psi)	(700)
Polymethylmethacrylate	N/mm² (psi)	-
Glass Fiber Reinforced Epoxy	N/mm²	8
Hardwood (Teak)	N/mm²	
Softwood (Deal)	(psı) N/mm² (psi)	•

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 7 days @ 22 °C Lap Shear Strength, ISO 4587: Mild Steel (grit blasted)

Hot Strength





Time, hours

Chemical/Solvent Resistance

Aged under conditions indicated and tested at 22 °C

		% of initial strength		
Environment	°C	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 guickly 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. 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

 $(^{\circ}C \ge 1.8) + 32 = ^{\circ}F$ kV/mm $\ge 25.4 =$ V/mil mm / 25.4 = inches N $\ge 0.225 =$ lb N/mm $\ge 5.71 =$ lb/in N/mm² $\ge 145 =$ psi MPa $\ge 145 =$ psi MPa $\ge 145 =$ psi N·m $\ge 8.851 =$ lb·in N·m $\ge 0.738 =$ lb·ft N·mm $\ge 0.738 =$ lb·ft N·mm $\ge 0.142 =$ oz·in mPa $\le cP$

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.

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Reference 0.2