Hysol® 9484™

July 2008

PRODUCT DESCRIPTION

Hysol® 9484™ provides the following product characteristics:

Technology	Epoxy
Chemical Type (Resin)	Epoxy
Chemical Type (Hardener)	Polyamide
Appearance (Resin)	Light colored paste
Appearance (Hardener)	Gray paste
Appearance (Mixed)	Gray paste
Viscosity	Medium
Components	Two part - Resin & Hardener
Mix Ratio, by volume - Resin : Hardener	1 : 1
Mix Ratio, by weight - Resin : Hardener	100 : 85
Cure	Room temperature cure after mixing
Application	Bonding
Key Substrates	Plastics, Metals, Glass, Wood, Ceramics, Rubbers and Masonry materials
Maximum Gap	3.0 mm

Hysol® 9484™ is a tough, medium viscosity, industrial grade epoxy adhesive with a medium work life. Once mixed the two-part epoxy cures at room temperature to form a flexible gray bondline with excellent resistance to shock and impact. The fully cured epoxy is resistant to a wide range of chemicals and solvents, and acts as an excellent electrical insulator. Hysol® 9484™ is suited for low-stress, high-impact bonding applications of dissimilar materials. It can be used for repairing strain gauges, sealing seams on fiberglass components, repairing printed circuit boards, bonding stainless steel inserts, and rubber hose to steel tubing.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin Properties

Specific Gravity @ 25 °C	1.3
Viscosity, Brookfield - RVT, 25 °C, :	
Spindle 7, speed 10 rpm	60,000 to 175,000
Viscosity, DIN 54453, mPa·s (cP):	
Shear rate 10 s^{-1}	70,000
Flash Point - See MSDS	

Hardener Properties

Specific Gravity @ 25 °C	1.1
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 7, speed 10 rpm	60,000 to 120,000
Viscosity, DIN 54453, mPa·s (cP):	
Shear rate 10 s^{-1}	42,000
Flash Point - See MSDS	

Mixed Properties

Specific Gravity @ 25 °C	1.2
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 7, speed 10 rpm	70,000 to 150,000
Pot Life @ 22 °C, minutes:	
100 g mass	40

TYPICAL CURING PERFORMANCE

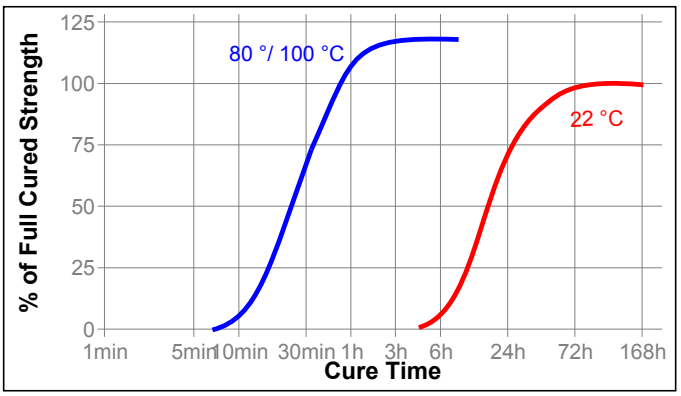
Fixture Time

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

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

Physical Properties:

Coefficient of Thermal Expansion ISO 11359-2, K^{-1}:		
Temperature Range: 16 °C to 39 °C		62×10^{-6}
Temperature Range: 47 °C to 199 °C		157×10^{-6}
Shore Hardness, ISO 868, Durometer D		55
Glass Transition Temperature, ASTM D 1640, °C		56
Elongation , ISO 527-3,%		50
Tensile Strength, ISO 527-3	N/mm² (psi)	15 (2,200)
Tensile Modulus , ISO 527-3	N/mm² (psi)	161 (23,000)

Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	15.6

TYPICAL PERFORMANCE OF CURED MATERIAL

Cured for 3 days @ 22 °C

Lap Shear Strength , ISO 4587:

Mild steel (grit blasted)	N/mm² (psi)	25 (3,600)
Aluminum (anodised)	N/mm² (psi)	6.3 (910)
Aluminum(etched in acidic ferric sulphate)	N/mm² (psi)	6.8 (990)
Stainless steel	N/mm² (psi)	13 (1,900)
Galvanized Steel (Hot Dipped)	N/mm² (psi)	20 (2,900)
Polycarbonate	N/mm² (psi)	3.8 (550)
Nylon	N/mm² (psi)	2.6 (380)
Wood (Fir)	N/mm² (psi)	6.6 (960)
ABS	N/mm² (psi)	4.2 (610)
GRP (polyester resin matrix)	N/mm² (psi)	6.2 (900)
Glass Fiber Reinforced Epoxy	N/mm² (psi)	10 (1,500)

Tensile Strength , ISO 6922:

Mild steel (grit blasted) to Soda glass	N/mm² (psi)	16 (2,300)

180° Peel Strength, ISO 8510-2:

Mild steel (grit blasted)	N/mm (lb/in)	1.3 (7.4)

TYPICAL ENVIRONMENTAL RESISTANCE

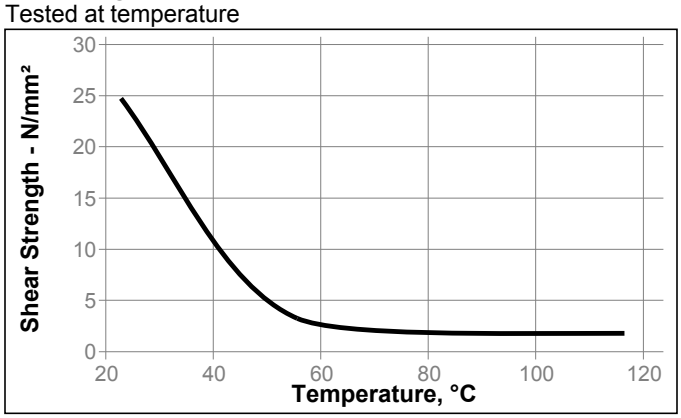
Cured for 5 days @ 22 °C

Lap Shear Strength , ISO 4587:

Mild Steel (grit blasted)

Hot Strength

Tested at temperature



Heat Aging

Stored at temperatures indicated and tested at 22°C.

Temperature	% Initial strength retained after	
	500 h	**1,000 h**
80 °C	100	115
100 °C	110	115
120 °C	130	120

Chemical/Solvent Resistance

Immersed in conditions indicated and tested at 22 °C.

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Unleaded gasoline	22	60	75
Water/glycol 50/50	87	45	40
Salt/Fog ASTM B-117	22	25	5
98% RH	40	5	2
Condensing Humidity	49	60	55
Water	22	50	0
Acetone	22	0	0
Isopropanol	22	70	60

Chemical/Solvent Resistance

Immersed in conditions indicated and tested at 22 °C

Tensile Strength , ISO 6922:

Mild steel (grit blasted) to Soda glass

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Air	22	90	80
98% RH	40	5	5

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).

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.

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. **Do not mix quantities greater than 500 g 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.

5. Working life of the mixed adhesive is . 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.

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 Technical Service Center or Customer Service Representative.

Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
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 1.1