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Product Description Sheet

Hysol® Product 9490

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Description

Loctite® Hysol® 9490 epoxy is a *crystalline silica-free formulation* engineered for bonding dissimilar substrates such as metals, thermoplastics and thermoset laminates like sheet molding compound (SMC), without the use of primers. This tough, flexible, sag-resistant epoxy offers manufacturers a structural adhesive that can be sanded without concern for the hazards associated with crystalline silica.

Features

Excellent Peel Strength
Excellent Tensile Shear Strength
Resistant to Automotive Fluids
Impact and Fatigue Resistant
Easily Mixed – Easily Dispensed
Non-Sag – Slump Resistant
Long Work Life
Quick Heat Cure Response
Crystalline silica-free

Mixing – Cartridges: Place cartridge in proper dispenser. To begin using a new cartridge, remove cartridge cap and dispense a small amount of adhesive, making sure Part A and Part B are extruding. Attach nozzle and dispense approximately 1-2" before applying onto the part being bonded. Partially used cartridges can be stored with mixing nozzle attached. To reuse, remove and discard the old nozzle, attach new nozzle and begin dispensing.

Application: Bonding surfaces should be clean and dry. The bonded parts should be held in contact until the adhesive is set. It not necessary to maintain fixturing for the entire cure schedule but only until handling strength is achieved.

Cure: Hysol 9490 can be cured by a variety of cure schedules to meet processing requirements. 9490 will achieve handling strength in 6-8 hours at room temperature (note: this can vary with different bond configurations and ambient temperatures). Full cure time at 77 °F is 3 days. After 24 hours, approximately 90% of full cure properties are attained. Heat cures up to 300°F can be used to reduce time.

Clean up: It is important to remove excess adhesive from the work area and application equipment before it hardens. Many common solvents and citrus cleaners are suitable for removing uncured adhesive. Consult with your solvent supplier for information pertaining to the safe and proper use of solvents.

Typical Uncured Properties	Part A	Part B	Mixed
Pot Life @ 77°F, 250 grams mins	--	--	40 to 50
Color	Off White	Black	Grey
Viscosity, cP	150,000 to 300,000	100,000 to 250,000	150,000 to 250,000
Specific Gravity	1.38	1.34	1.36
Density, Lbs/Gal	11.5	11.2	11.3
Mix Ratio			
By weight	100	100	--
By volume	1	1	--
Peak Exotherm, 250 grams			200°F

Typical Properties	Typical Value
Tensile Strength, psi, ASTM D 638	5820
Modulus, psi, ASTM D 638	600,000
Elongation, %, ASTM D 638	2
Tg. °F	165
CTE, ASTM D 696, in/in/ °C	61.1×10^{-6}
Thermal Conductivity, cal x cm/cm ² x secs x °C	7.76×10^{-4}
Water Absorption, %, 30 Day Soak	<0.2
Hardness, Shore D	>80

Electrical Properties	Typical Value
Dielectric Strength, ASTM D149, V/mil	835

Handling

Mixing: Hysol 9490 requires mixing Part A and Part B together just prior to the application. Complete mixing is necessary.

Application

Mixing – Bulk: Combine Part A (resin) and Part B (hardener) in the correct ratio and mix thoroughly. Continue to mix until all white and black streaks are gone and mix is uniformly gray. This is important! Heat build-up during or after mixing is normal. Do not mix quantities greater than ten pounds as excessive exotherm or heat build-up will develop. Mixing smaller quantities will minimize the heat build-up.

Shear Strength, psi, ASTM D 1002 Metal Substrates Cured 3 Days @ 77°F

	Bondline Thickness Mils	Test Temp °F	Typical Value
Etched Aluminum	5	-40	3700
	5	77	3500
	5	180	1000
	5	225	500
	5	250	300
Unetched Aluminum	5	77	1800
	5	180	500
304 Stainless Steel	5	77	2800
CR Steel	5	77	2500

Shear Strength, psi, ASTM D 1002 Plastic Substrates Cured 3 Days @ 77°F

	Bondline Thickness, Mils	Test Temp °F	Typical Value
FRP	30	77	240
ABS	30	77	560
Filled PVC	30	77	120
Polycarbonate	30	77	360

Peel Strength ASTM D 3167 Etched Aluminum, pli

Cure Schedule	Test Temp °F	Typical Value
3 Days @ 77°F	-67	10
	77	35
8 Hours @ RT + 1 Hour @ 250°F	77	40

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THE TECHNICAL DATA CONTAINED HEREIN ARE INTENDED AS REFERENCE ONLY.
PLEASE CONTACT LOCTITE CORPORATION QUALITY DEPARTMENT FOR ASSISTANCE AND RECOMMENDATIONS ON SPECIFICATIONS FOR THIS PRODUCT.
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Heated Fixture Strength: Tensile Lap Shear Strength at 77°F tested per ASTM D3163 on various SMC specimens with 30 Mil bondline. Heated fixture test specimens equilibrated for 10 minutes at room temperature.

Shear Strength, psi, ASTM D 3163 Thermoset Plastic Substrates Cured 2 minutes @ 275°F			
	Bondline Thickness, Mils	Test Temp °F	Typical Value
Budd, DSM-950, SMC	30	77	530
Cambridge, SLI-218-1	30	77	630
Cambridge, SLI-252	30	77	640
Haysite, 430000-22-BU	30	77	850
Haysite, 545000-35-RD	30	77	750
Quantum, QC2130	30	77	700
Quantum, QC8560 60%	30	77	1200
Quantum, QC8560 63%	30	77	1500

Environmental Resistance: Tensile lap shear strength tested at 77°F per ASTM D1002 after 30 day soak in specified fluid

Shear Strength after Environmental Exposure psi,	
	Typical Value
Control	3500
77°F Water	3500
77°F Sea Water	3500
Salt Spray @ 95°F	3500
Boiling Ethylene Glycol/ Water 50/50	2000
Automatic Transmission Fluid @ 77°F	3500
Automatic Transmission Fluid @ 180°F	3250
Brake Fluid @ 77°F	3500
Windshield Wiper Fluid @ 77°F	3500
10W-40 Motor Oil @ 77°F	3500
Unleaded Gasoline @ 77°F	3000
Diesel Fuel @ 77°F	3500
100%RH/100% RH	3500

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).

Storage

Store product in unopened container in a cool dry location. Ideal conditions are within the range 8 to 21 degrees C (46 to 70 degrees F) and are recommended for long term storage. Exposure to higher temperatures (greater than 28 degrees C) for prolonged periods should be avoided as extended exposure to warm conditions can adversely affect product properties. For further specific shelf life information, contact your local Technical Service Center.

Note

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