ES6292
Lightweight Tough Epoxy Adhesive

DESCRIPTION

ES6292 is a two component epoxy adhesive intended for use in bonding composite parts and structural assemblies. ES6292 is a very tough adhesive that works well in applications where severe stresses and vibration are involved. It is not brittle when cured, and has very good resistance to peel forces. The mixed material has very good thixotropy, and fills gaps in uneven bond lines without sagging or run out during cure. ES6292 performs well at both high and low temperatures, so it is useful for applications where the bonded structure is exposed to environmental extremes.

PRODUCT SPECIFICATIONS

	ES6292 Part A	ES6292 Part B	ASTM Method
Color	Off White	Tan	Visual
Viscosity, @ 77°F, centipoise	Paste	Paste	D2392
Specific Gravity, gms./cc	0.90	1.03	D1475
Mix Ratio	100 : 31.5 By Wt. 3.7 to 1 By Volume		PTM&W
Pot Life, 4 fl.oz. Mass @ 77°F	40 - 50 minutes		D2471

PACKAGING WEIGHTS

	Gallon Kit	Pail Kit	Drum Kit
ES6292 Part A	7 lb.	36.5 lb.	3 Drums @ 375 lb. ea.
ES6292 Part B	2.25 lb.	11.5 lb.	355 lb.
Kit	9.25 lb.	48 lb.	1,480 lb.- 4 Drum Kit

DIRECTIONS FOR USE

PREPARATION: When using epoxy adhesives, all surfaces to be bonded or patched must be free of dirt, oil and grease. Sanding or roughening the area to be bonded increases the surface area and enhances the bond. Surface treatments and preparation procedures are available that improve the adhesion to specific surfaces. Check with our Technical Services Department for information regarding your particular application.

MIXING: Measure out the correct amount of resin and hardener, combine, and mix thoroughly until a uniform color and consistency is reached. Mix for at least 1 to 2 minutes, scraping the sides and bottom of the container to avoid leaving unmixed material that will cause soft spots in the cured material.

APPLICATION and CURING: Apply mixed material to the properly prepared surfaces of the parts to be bonded. If necessary, place assembly in a jig or other device to prevent movement during initial curing time. ES6292 will cure at room temperature, but the cure time is usually too long for an acceptable production rate. As such, ES6292 is normally heat cured to achieve a good balance between full cure and reasonable production time. The material to be adhered may be preheated to accelerate curing time, or very light heat can be applied after the parts have been bonded. If no heat is applied, the bonded components will develop sufficient strength for removing from the fixture in 6 to 10 hours, depending upon ambient temperature

DIRECTIONS FOR USE, continued

At this point, the assembly can be heat cured to develop full properties. If faster curing by the application of heat is desired, the ES6292 should be allowed to gel at room temperature for 2 hours before heat is applied, to avoid expansion of the adhesive, or stress development in the joints. After this room temperature gel, the material can be oven cured. A typical oven cure would be 4 to 6 hours at 150°F to 160°F. Higher temperatures would cure the material in shorter time, and lower temps would be proportionally longer. Tests should be run to determine the optimum cure time for your components and setup.

TYPICAL MECHANICAL PROPERTIES

	ES6292 A / B	ASTM Method
Mix Ratio, By Weight	100 : 31.5 By Wt. 3.7 to 1 By Volume	PTM&W
Color	Tan	Visual
Mixed Viscosity, centipoise	Non Sag Paste	D2393
Cured Hardness, Shore D	81 Shore D	D2240
Specific Gravity, grams, cc	0.98	D1475
Flexural Strength, psi	7,635 psi	D790
Flexural Modulus, psi	246,270 psi	
Compressive Strength, psi	7,482 psi	D695
Compressive modulus, psi	208,270 psi	
Izod Impact Strength, ft.lbs./in.of notch, Method A, Notched Unnotched	0.17 0.80	D256
Dry Tensile Lap Shear, Aluminum to Aluminum, @ 77°F	2,800 psi	D1002
Wet Tensile Lap Shear, Aluminum to Aluminum, @ 77°F	2,460 psi	
Dry Tensile Lap Shear, Epoxy/Glass to Epoxy Glass, @ 77°F	2,250 psi	
Wet Tensile Lap Shear, Epoxy/Glass to Epoxy Glass, @ 77°F @150°F	2,150 psi 1,600 psi	
Heat Deflection Temperature, @ 66 psi @ 264 psi	205°F 199°F	D648
Glass Transition Temperature, Tg, DSC	210°F	D3418
Glass Transition Temperature, Tg Onset (E'), DMA	205°F	D7028
Thermal Coefficient of Expansion, Range: 120°F to 200°F	7.55 x 10^{-5} in./in./ °F	D696

SAFETY and HANDLING

PTM&W epoxy products are made from raw materials carefully chosen to minimize or even eliminate toxic chemicals, and therefore offer the user high performance products with minimum hazard potential when properly used. Generally, the PTM&W epoxy resins and hardeners will present no handling problems if users exercise care to protect the skin and eyes, and if good ventilation is provided in the work areas. However, breathing of mist or vapors may cause allergenic respiratory reaction, especially in highly sensitive individuals. As such, avoid contact with eyes and skin, and avoid breathing vapors. Wear protective rubber apron, clothing, nitrile rubber gloves, face shield or other items as required to prevent contact with the skin. In case of skin contact, immediately wash with soap and water, followed by a rinse of the area with vinegar, and then a further wash with soap and water. The vinegar will neutralize the hardener and lessen the chances of long term effects. Use goggles, a face shield, safety glasses or other items as required to prevent contact with the eyes. If material gets into the eyes, immediately flush with water for at least 15 minutes and call a physician. Generally, keep the work area as uncluttered and clean as possible, and clean up any minor spills immediately to prevent accidental skin contact at a later time. Keep tools clean and properly stored. Dispose of trash and empty containers properly. Do not use any of these types of products until Material Safety Data Sheets have been read and understood.

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