TR-150-25
High Temperature Polyimide Resin

DESCRIPTION

TR-150-25 is a modified reactive polyimide solution designed to provide outstanding high temperature service in a variety of demanding applications. Stable and dependable performance in service environments of 500^{O}F is routinely expected of TR-150-25, and it can withstand brief or intermittent exposure to 850^{O}F without significant damage or severe loss of properties.

TR-150-25 provides a higher flexural strength than most polyimides, as well as having good adhesion to a variety of substrate. Its high flexural strength yields superior toughness and durability to laminates and bonded structures fabricated with it. When properly cured, TR-150-25 is virtually unaffected by most solvents and chemicals, with the exception of strong caustic solutions which may pit the surface and eventually degrade the polymer.

HANDLING PROPERTIES

PROPERTY	RESULT
Appearance	Dark Amber Liquid
Viscosity @ 77^{O}F, cps	500 - 1,000 cps
% Solids by Weight	75 %
Density, lb. / Gallon	9.6

TYPICAL APPLICATIONS

TR-150-25, when used as an adhesive, provides bonds that retain their strength in environments up to 500^{O}F. Aging studies show that TR-150-25 bonds retain 75% of their original strength after more than 4000 hours at temperatures above 500^{O}F. Excellent metal-to-metal bond strength has been observed with properly treated stainless steel, copper, aluminum and titanium alloys.

TR-150-25 was originally developed to bond Kapton polyimide film to copper for printed circuit applications, and has been proven to be an excellent material for this use. The resulting copper/Kapton laminates show outstanding resistance to delamination even after exposure to extensive performance tests such as etching, solvent and solder dipping, and heat aging.

CURING SCHEDULE

When fabricating Kapton film/copper laminates, coat one or both surfaces with TR-150-25 and dry the solvent at 160-200^{O}F. This is followed by an elevated temperature cure of 1 - 2 hours at 350^{O}F and 1 hour at 400^{O}F.

BONDING STRENGTH

Properties shown are based on bonding stainless steel. Similar results have been obtained with titanium alloys and aluminum.

Initial Bond Strength, PSI at Failure. ASTM D-100		
	TEST TEMPERATURE	RESULTS
	21°C (70°F)	3,800 psi
	260°C (500°F)	2,200 psi
Heat Aging In Air, ASTM D-1002		
	TENSILE STRENGTH	
AGING TIME	Tested at Room Temperature	Tested at 500°F
500 Hours	3,300 psi	2,160 psi
1,000 Hours	3,100 psi	2,290 psi
2,000 Hours	2,580 psi	2,050 psi
3,000 Hours	2,250 psi	1,810 psi
4,000 Hours	2,150 psi	1,750 psi

PACKAGING

	Pints	Gallons
TR-150-25	1 lb.	9.3 lb.

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.

TR-150-25 Bulletin / InDesign / 090314-C2

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