

Leepoxy Plastics, Inc.

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TECHNICAL BULLETIN LEECURE B-614

Description

LEECURE B-614 a reactive member of Leepoxy's proprietary liquid BF₃ epoxy curing agent family. When mixed with standard epoxy Bisphenol A resin, LEECURE B-614 will gel rapidly at room temperature, assuming little or no heat sink effect. Although good results may be achieved under room temperature conditions, modest heat curing is recommended to realize consistently optimal properties. LEECURE B-614's balance of pot life and reactivity makes it practical to dispense via meter-mix equipment or dual cartridge guns while maintaining high production throughput.

TYPICAL PROPERTIES	
Appearance	Brown liquid
Viscosity @ 25°C, cps	19,000
Density, pounds/gallon	9.5
Shelf life, months	12

1 Mix ratio with Bisphenol A Resin (EEW=189)

For higher performance applications, LEECURE B-614 can be used with epoxy novolac, and flexibilized epoxy resins. Cured systems offer exceptional chemical and heat resistance, tensile strength and electrical properties. The excellent physical properties of LEECURE B-614 cured systems can be enhanced through the judicious choice of

appropriate dry non-alkaline fillers. In unfilled systems, fracture, impact, and thermal shock resistance can be significantly improved through the incorporation of flexibilized resins or toughening agents. Leepoxy's proprietary 23-135 CTBN adduct is one such toughening agent

Handling and Mixing

Keep LEECURE B-614 containers tightly sealed at all times. Use of dry nitrogen is recommended to protect partial containers from moisture contamination. The epoxy resin, fillers, and any other ingredients to be mixed should be moisture-free as well. Avoid alkaline fillers such as calcium carbonate. Fillers such as silica, barytes, glass, graphite, clays, and others that have a pH of 7 or lower are recommended. Mix very thoroughly in a dry mix vessel. No special equipment is necessary, but entrapment of excessive air bubbles should be avoided. Exposure to humidity in the air should be minimized from the time of mix until the product is ultimately cured because prolonged exposure to humidity may harm the reactivity, physical properties, and surface appearance of a LEECURE B-614 cured system.

Curing Conditions

Epoxy compounds containing LEECURE B-614 should be cured so as to control the effects of the exothermic reaction. The optimum time and temperature will depend on the particular formulation and the mass of compound. Longer cure schedules may be needed when curing thin sections or where the epoxy is adjacent to a mass of material that will act as a heat sink. The recommended minimum bondline cure temperature is 65°C. Generally, the higher the cure temperature, the better the heat resistance and physical properties of the cured systems.

Additives, modifiers, and diluents used in formulating epoxy compounds incorporating LEECURE B-614 may have a marked effect not only on the cure rate but also the final properties of the cured system. Diluents, fillers, and flexibilizers will generally increase pot life, gel time, and cure time.

TYPICAL PERFORMANCE	
Tensile Strength, psi	2,000
Tensile Modulus, psi	480,000
Tensile Elongation, %	4.0
Hardness, Shore D	90
Dielectric Constant, 1 mHz @ 25°C	3.9
Dissipation Factor, 1 mHz @ 25°C	0.018
Heat Deflection Temperature, °C	78

TYPICAL HANDLING PROPERTIES	
Mix Ratio ¹ , phr	8 – 12
Gel time @ 25°C, 11 g, minutes	13
Work Life @ 25°C, static mixer, minutes	25
Cure Time @ 65°C, 3/16 inch bead,	
Green Strength, minutes	1 – 1.5
Full Cure, minutes	2