

Leepoxy Plastics, Inc.

3706 W. Ferguson Rd., Fort Wayne, IN 46809

Phone: (260) 747-7411 Fax: (260) 747-7413

TECHNICAL BULLETIN LEECURE B-1850

LEECURE B-1850 is a proprietary Lewis acid epoxy curing agent based on boron trifluoride. It is the second most reactive in a series of four latent BF₃ catalysts. LEECURE B-1850 offers a long pot life, yet with a short cure time in thin film or small mass at a relatively low cure temperature. LEECURE 1850 can cure epoxy systems at lower temperatures faster than other more latent catalysts resulting in lower energy costs and higher product throughput.

LEECURE B-1850 is liquid at room temperature and is compatible with Bisphenol A, Bisphenol F, flexible, novolac and other multifunctional epoxy resins. Epoxy novolac resins are more reactive than Bisphenol A resins, while most flexibilized resins are less reactive. Cured systems offer exceptional chemical and heat resistance, tensile strength and electrical properties.

TYPICAL PROPERTIES	
Appearance	Brown liquid
Viscosity @ 25°C, cps	15,000
Density, lbs./gal.	9.3
Shelf Life, months	12

Handling and Mixing

Keep LEECURE B-1850 containers tightly sealed at all times. Use of dry nitrogen is recommended to protect partial containers from moisture

/humidity 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 heat cured because prolonged exposure to humidity may harm the reactivity, physical properties, and surface appearance of the cured system.

TYPICAL HANDLING PROPERTIES	
Mix Ratio, by weight, phr ¹	5
Pot Life @ 25°C, hours	8
Gel Time @ 80°C, 10 g, min	24
Cure Time @ 135°C, thin film, min	12

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

Curing Conditions

Epoxy compounds containing LEECURE B-1850 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 100°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-1850 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	9,000
Modulus, psi	4.8×10^5
Tensile Elongation, %	4.1
Hardness, Shore D	90
Dielectric Constant, 1 mHz @ 25°C	3.8
Dissipation Factor, 1 mHz @ 25°C	0.014
Volume Resistivity, ohm-cm, 25°C	1×10^{14}
, 130°C	1×10^9
Dielectric Strength, v/mil	790

The Information contained herein is correct to the best of our knowledge. The recommendations or suggestions contained in this bulletin are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory prior to use. Our responsibility for claims arising from breach of warranty, negligence or otherwise is limited to the purchase price of the material. Freedom to use any patent owned by Leepoxy Plastics, Inc. or others is not to be inferred from any statement contained herein.