



June 26, 2001

E-301AD

THERMALLY CONDUCTIVE EPOXY CASTING RESIN

Lord E-301AD is a low viscosity version of Lord E-301. It offers the same excellent heat transfer, high voltage insulation and dimensional stability over a wide temperature range. As an encapsulant for power devices it distributes heat evenly throughout the casting, providing greater efficiency and a longer working life. This compound has good wetting properties and low surface tension. Its high fluidity and good air release recommend it for potting intricate circuitry. Glass diodes potted in E-301AD have shown good resistance to cracking under severe temperature cycling. Unlike E-301, the filler used in E-301AD may settle out during storage. It is very important to stir the material in the shipping container prior to use.

TYPICAL APPLICATIONS:

Densely packaged power supplies, integrated circuits, thick film hybrid devices, D/A converters, delay lines, oscillators, minidac, operational amplifiers, binary devices, relay, transformers and semiconductors.

UNCURED PROPERTIES:

Color	Black (also available Unpigmented)
Specific Gravity @ 25°C	1.75 – 2.00
Viscosity @ 25°C, cps (uncatalyzed)	7,300 – 13,400
Shelf Life (months from date of shipment in unopened containers)	12

PHYSICAL PROPERTIES:

Tensile Strength @ 25°C, psi	9,890
Tensile Elongation, % @ yield	1.6-1.8
Compressive Strength @ 25°C, psi	25,000
Izod Impact, ft lbs./in of notch	0.3
Heat Distortion, °C	120
Water Absorption, 10 days @ 25°C, %	0.2
Linear Shrinkage, in/in	0.002
Service Temperature, °C Continuous	-65 to 155
Intermittent	-100 to 175
Hardness, Shore D	85 - 90

THERMAL PROPERTIES:

Thermal Conductivity	
Cal/sec/cm ² /°C x 10 ⁻⁴	31
BTU/ft ² /fr/°F/in	9.0
Thermal Resistance, °C/in/watt	30
Coefficient of Thermal Expansion	
In/in/°Cx10 ⁻⁶	26

DS3729

ELECTRICAL PROPERTIES:

Volume Resistivity @ 25°C, ohm-cm	10 ¹⁵
Dielectric Constant @ 25°C, 100KC	5.6
Dissipation Factor @ 25°C, 100KC	0.02
Dielectric Strength, volts/mil	500

Typical properties when cured with hardener Circalok™ 6010B (formerly RT-1) for 2 hours at 65°C(149° F) and 2 hours at 100°C (212°F).

HARDENERS:**DESCRIPTION & HANDLING:**

Circalok™ 6010B (formerly RT-1) (room temperature cure) Rigid, good properties for ambient temperature cured system, limited working time, fast cure. Handling: Do not use for castings of more than 200 grams (7 oz.) in a concentrated mass. For small castings moderate heat may be used to accelerate cure.

Circalok™ 6252 (formerly RT-7) (room temperature cure) Resilient, resistant of thermal shock, very low viscosity, good air release, medium pot life, moderately fast cure. Handling: Do not use for castings of more than 200 grams (7 oz.) in a concentrated mass. For small castings moderate heat may be used to accelerate cure.

Lord E-62S (heat cure) Resistant to heat, chemicals, thermal and mechanical shock; good electricals at high humidity; long pot life; non-crystallizing in storage. Handling: To reduce resin viscosity preheat to 65°C(149°F) before adding hardener. Do not preheat when pouring castings of more than 454 grams (16 oz.) in a concentrated mass or when maximum pot life is needed.

Lord HT-75 (heat cure) Good electrical properties at elevated temperature; resistant to heat aging, thermal and mechanical shock; low exotherm; very long pot life. Handling: To make pourable, heat at 65°C (149°F) E-301AD may also be preheated to further reduce the viscosity of the system. Minimum hardener ratio favors rigidity at elevated temperature; maximum ratio yields optimum shock resistance.

CURE SCHEDULES:

Hardener	Parts by Weight	Pot Life	Cure Time	Cure Time	Cure Time	Cure Time
	Per 100 Parts Resin@ 25°C	100 grams (77°F)	@25°C (149°F)	65°C (212°F)	100°C (266°F)	130°C (77°F)
Circalok™ 6010B(formerly RT-1)	5.3	2 Hrs.	24 Hrs.	2 Hrs.	--	--
Circalok™ 6252(formerly RT-7)	11.0	3 Hrs.	24 Hrs.	2 Hrs.	--	--
Lord E-62S	7.5	2 Hrs.	--	16 Hrs.*	5 hrs.*	3 hrs.*
Lord HT-75	27-34	48 Hrs.	--	--	--	4 hrs.**

*These cure schedules are suitable for pourings of up to 227 grams (8 oz.) in a concentrated mass. For pourings of more than 227 grams but less than 2 lbs., or when encapsulating sensitive components, the preferred cure is 4 hours at 65°C (149°F) plus 2 hours at 125°C (257°F). Pourings of more than 2 lbs. should be allowed 4 to 8 hours in which to attain a hard gel at 55°C (131°F) before being cured for 3 hours at 100°C (212°F). For maximum heat resistance post cure for 16 hours at 150°C (302°F).

**This cure schedule is suitable for pourings of up to 70 grams (2.5 oz.) in a concentrated mass.

MIXING INSTRUCTIONS:

Stir E-301AD in its shipping container to insure a uniform dispersion of the filler. Use of power mixing equipment is recommended. Weigh the desired amount of compound in a clean container and add the hardener by weight in the proportion specified. Mix thoroughly. When necessary to remove entrapped air, evacuate prior to pouring. Use in a ventilated area and avoid contact with eyes and skin.

HANDLING PRECAUTIONS:

The labels on containers of Lord materials contain current information on the hazards associated with each particular product. Most epoxy resins and hardeners are skin and eye irritants, and some may actually be corrosive to the skin and eyes. Other problems, such as skin sensitization or serious health hazards may exist. Further information on each product is contained in the Material Safety Data Sheet, which will be sent upon request.

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