



# PRODUCT INFORMATION

**HIGH TECHNOLOGY MATERIALS**

## MERECO CN-773

### **HIGH HEAT TRANSFER EPOXY RESIN SYSTEM**

**MERECO CN-773** is a high performance thermally conductive epoxy resin system specially formulated to be the best and most logical engineering choice where excellent characteristics, high thermal conductivity and low coefficient of expansion are absolute requirements; while other methods do yield substantially high values for thermal dissipation factors, using the Cenco-Fitch testing procedure, **MERECO CN-773** shows a value of 4.76, while the nearest competitive resin achieves a reading of only 4.5 (although, values reported in commercial data bulletins range to 35).

#### TYPICAL APPLICATIONS:

**MERECO CN-773** is used as an electrically insulating and thermally conducting heat sink for bonding heat sensitive devices, for large castings of magnetic coils, and the encapsulation of heat emitting components, transformers, resistor elements, silicon controlled rectifiers, etc.

#### SELECTION OF ACTIVATOR:

**MERECO CN-773** can be set at room temperature, or at elevated temperatures depending upon which activator is used and the ultimate properties desired.

Activators 16E and 16C provide maximum properties. Activator 10 is available for fast room temperature curing applications or where heat curing is not possible. Hardener 43 provides both lower viscosity and cure at room temperature.

#### MIXING INSTRUCTIONS:

1. For Room Temperature Cure: Thoroughly blend 3 to 4 parts of Activator 10, or 7 to 8 parts Activator 43 by weight, to 100 parts, by weight, of **MERECO CN-773**.
2. For Heat Cure: Thoroughly blend 4 to 5 parts of Activator 16E, or 10 parts of Activator 16C, by weight, to 100 parts, by weight, of **MERECO CN-773**.

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**CURING INSTRUCTIONS:**

Room temperature using Activator 10 or Activator 43 - allow to stand at ambient temperature for 4 hours or until hard, then remove from mold. Complete cure is achieved in 24 hours. Hardener #43 produces a more resilient and shock resistant system if a post cure is utilized.

Heat Cure using **ACTIVATOR 16 E - MERECO CN-773** can be preheated at any temperature up to 165°F before adding Activator to lower viscosity for easy pouring. Cure at any of the following schedules: 165°F for 16 hours; 212°F for 2 hours or 257°F for 1 hour.

A Post Cure for 4 hours at 300°F is recommended for optimum high temperature properties.

Heat Cure Using Activator 16-C. Same conditions as 16-E.

**TYPICAL PROPERTIES WITH ACTIVATOR 16E**

**ACTIVATOR 16-C**

**MIXED LIQUID, UNCURED**

Color	Blue or Black	Blue or Black
Specific Gravity	2.5	2.5
Viscosity (Catalyzed, 25°C, cps)	70,000	70,000

**CURED PROPERTIES**

Tensile Strength (psi)	8,450 ( 590 KG/cm <sup>2</sup> )	9,650 ( 674 KG/cm <sup>2</sup> )
Compressive Strength (psi)	14,250 (1000 KG/cm <sup>2</sup> )	14,000 ( 980 KG/cm <sup>2</sup> )
Flexural Strength (psi)	13,400 ( 935 KG/cm <sup>2</sup> )	14,500 (1015 KG/cm <sup>2</sup> )
Thermal Conductivity CAL/(sec) (cm <sup>2</sup> ) (FT <sup>2</sup> ) (°F/In) (BTU/ (HR) (FT <sup>2</sup> ) (°F/In)	1.64 x 10 <sup>-3</sup> 4.76	1.6 x 10 <sup>-3</sup> 4.64
Thermal Expansion Coefficient (/°C)	15 x 10 <sup>-6</sup>	17 x 10 <sup>-6</sup>
Thermal Deflection (°F)	275	250
Water Absorption (7 Days)	Less than 0.1%	Less than .5%
Volume Resistivity (ohm-cm @ 25°C)	4.5 x 10 <sup>14</sup>	2.3 x 10 <sup>11</sup>
(ohm-cm @ 150°C)	1.3 x 10 <sup>12</sup>	1.5 x 10 <sup>9</sup>
Dielectric Constant (10 <sup>2</sup> to 10 <sup>10</sup> Hz)	4.7	4.5
Dissipation Factor (10 <sup>2</sup> to 10 <sup>8</sup> Hz)	Less than 0.01	Less than 0.01
Dielectric Strength (Volts/mil)	460	450

**MERECO RELEASE AGENT 7521** should be used prior to casting to insure easy parting from the mold