

Product
Bulletin**E40-412****Thermally Conductive Epoxy Casting,
Potting And Adhesive Resin System****GENERAL DESCRIPTION**

E40-412 is a heavily filled alumina oxide epoxy formulation characterized by outstanding physical, electrical, and thermal properties.

E40-412 exhibits exceptional thermal conductivity, low thermal expansion, as well as excellent chemical and solvent resistance.

E40-412 is ideally suited for applications requiring high heat dissipation and exceptional electrical insulation properties.

E40-412 is also ideal for high voltage applications such as, power supplies, transformers, high voltage insulators, regulators, etc.

A choice of catalysts is provided in order to meet a wide variety of electrical and electronic applications.

Catalyst 412A is designed for applications requiring a room temperature curing system that remains rigid up to the service temperature of 150°C.

Catalyst 412B is designed for applications requiring room temperature curing, lowest viscosity and best handling properties with a service temperature up to 150°C. Will soften slightly above 121°C.

Catalyst 412C is designed to meet those applications which require the optimum in electrical, physical and thermal properties with a service temperature up to 205°C.

APPLICATION

Since E40-412 resin base may settle on storage, remix prior to each use. Mechanical agitation is preferred. Where necessary, remove entrained air by vacuum deairation.

Catalyst 412A: By weight, mix 3-4 parts catalyst to 100 parts resin base. Preheating resin to 38°C will reduce viscosity and improve handling. Pour and allow to cure overnight or heat cure 2 hrs. at 65°C.

Catalyst 412B: By weight, mix 6.5 - 7.5 parts catalyst to 100 parts resin base. Preheating resin base up to 40°C will lower viscosity and improve handling properties. Pour and allow to cure overnight at room temperature or mild heat. Cure 1 to 2 hrs. at 60 – 70°C.

SPECIFICATIONSHANDLING CHARACTERISTICS

Catalyst Number: Catalyst 412A, 412B, 412C

Mixed Viscosity,

@ 25°C cps (Cat. 412A): 90,000

@ 25°C cps (Cat. 412B): 15,000

@ 65°C cps (Cat. 412C): 3,000

PHYSICAL CHARACTERISTICS

Shrinkage Linear, cm / cm: 0.001

Hardness, Shore D: 95

Specific Gravity, 25°C / 25°C: 2.3

Tensile Strength, psi: 8,500

Compressive Strength, psi: 17,000

THERMAL CHARACTERISTICS

Thermal Conductivity, btu / hr / ft² / °F / in: 11.5

Thermal Expansion Coefficient,

(cm / cm / °C · 10⁻⁵): 3.0

Heat Distortion, °C: 175

Operating Temperature Range, °C: -55 to +205

ELECTRICAL CHARACTERISTICS

Dielectric Strength, volts / mil: 560

Dielectric Constant, 60 Hz: 6.4

Dissipation Factor, 60 Hz: 0.018

Volume Resistivity, ohm · cm: 4.9 x 10¹⁶

***Properties listed are for Catalyst 412C**

APPLICATION (continued)

Catalyst 412C: By weight, mix 4 – 5 parts catalyst to 100 parts resin base. Preheating resin base up to 75°C will lower viscosity and will improve handling properties. Pour and cure 16 hrs. at 75°C, or 2 hrs. at 100°C, or 1 hr. at 125°C; post cure – 4 hrs. at 150°C for optimum properties.