

## Product Information

### E88 / C89

Two Part Epoxy Casting Compound  
Electrical Insulation system  
Encapsulation / Potting



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## Product Description

Elantas Zhuhai E88 & C89 is a dual component, flame retardant heat cure epoxy resin system for potting and casting - suitable for the impregnation and encapsulation of high voltage electrical components.

Due to its superior impregnation properties (even with fine wires) it reduces corona discharge. Coupled with this it possesses excellent thermal cycling characteristics ensuring service performance in applications requiring large bulk castings.

E88/C89 is crack resistant producing a tough, hard product with good thermal conductivity (rate of thermal transfer). It meets the requirements of UL94 V-0 and is found in UL file number **E100866**.

Since it is 100% solids, no solvent fumes are present during the cure process at elevated temperatures.

## Areas of Application

The preferred applications for E88/C89 are via conventional potting / encapsulation application for units such as conventional electric motors where good heat transfer properties are required.

## Processing

The following process is recommended for conventional encapsulation:

### 1. Pretreatment

Ensure that all components are clean, dry and free from contaminants such as oil and fatty materials.

### 2. Process details

**NOTE THE OPTIMUM MIX RATIO FOR THIS MATERIAL IS AS FOLLOWS:**

**100:114 PARTS BY WEIGHT  
100:106 PARTS BY VOLUME**

- Using drum heaters, preheat parts A and B with slow agitation to 60 to 70° C (140 to 158°F)
- After drums have reached uniform 60-70° C (140 to 158° F), transfer material to holding ("MOOV") tanks. Fill tanks to level of 4 to 6 inches.

## Processing continued

- Vacuum material at 0.5 mm Hg and 90°C (194°F)
- Check ratio of meter mix machine. Material dispensed should be 85 to 88°C (186 to 191°F).
- Mixing chamber settings should be 0.5 mm Hg and 95°C (203°F)
- Preheat transformers to 105 to 110°C (220 to 230°F)
- Curing conditions are one of the following:
  - 1 1/2 hrs. at 125°C (257°F)
  - 3 3/4 hrs. at 100-110°C (212 to 230°F)
  - 1 hr. at 135°C (275°F)

## Packaging

Elantas Zhuhai E88/C89 resin & hardener are currently sold in a set mix ratio (by weight) of 32kg & 36kg for ease of use.

Please note that this mix ratio must be adjusted if dosing through a meter mix dispenser or other measuring systems using volume.

## Health & Safety

Refer to Elantas Zhuhai Material Safety Data Sheet (MSDS) for E88/C89 resin and hardener.

## Shelf life

Stored below 25°C in a sealed environment, the shelf life of E88 resin is 12 months, while that of the C89 hardener is 6 months.

However, filling settling may occur in the resin. It must be agitated before use. Failure to store this product as recommended above may lead to deterioration in product performance and invalidate shelf life.

**Properties of component as supplied**

Property	E88 Resin	C89 Hardener
COLOUR	Grey opaque liquid	Tan opaque liquid
VISCOSITY @ 25°C (ASTM D2196)	150000-210000cps	12000-26000cps
SPECIFIC GRAVITY @ 25°C	1.76 gcm <sup>-3</sup> typical	1.93 gcm <sup>-3</sup> typical
<b>Mixed Property</b>		
VISCOSITY Brookfield @ 25°C	400 - 800 centipoise @ 90°C	
GEL TIME @ 100°C (150g bulk)	35 - 45 minutes	

**Mechanical Properties**

TENSILE STRENGTH (ASTM 638)	4570 psi
THERMAL CONDUCTIVITY	7.3 BTU-in/hr°Fft <sup>2</sup>
HARDNESS, SHORE D (ASTM D2240)	87
HEAT DISTORTION TEMPERATURE	135°C
THERMAL COEFFICIENT EXPANSION	3.5ppm/°C

**Electrical Properties**

DIELECTRIC STRENGTH (ASTM D149)	780V/mil
FILM THICKNESS	40mils
DISSIPATION FACTOR (ASTM D150)	0.01 (1kHz)
DIELECTRIC CONSTANT (ASTM D150)	3.7 (1kHz)

**Thermal Properties**

UL FLAMMABILITY CLASSIFICATION	V-0 5.4mm MINIMUM THICKNESS
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