

## EpoPro<sup>®</sup> 250A/B

### Multipurpose, UL 94 V0 Epoxy Encapsulation System

#### Typical Properties

(Not for specification purposes. All tests run at 25°C unless otherwise noted)

##### EpoPro 250A Properties:

Appearance	Visual	Liquid Black
Specific Gravity	ASTM D-792	1.47 g/cm <sup>3</sup>
Viscosity	ASTM-D-2393	7,100 cP
Flash point, closed cup	ASTM D-92	>200°C (392°F)

##### EpoPro 250B Properties:

Appearance	Visual	Liquid Amber
Specific Gravity	ASTM-D-792	1.47 g/cm <sup>3</sup>
Viscosity	ASTM-D-2393	15,600 cP
Flash Point, closed cup	ASTM D-92	>194°C (381°F)

##### Mix Ratio:

Parts by weight (volume) 1A :1B (1A:1B)

##### Mixed Properties:

Initial Viscosity @ 25°C	ASTM-D-2393	18,000cP
Gel time, 10 gram mass, @ 65°C		11 minutes
Pot-life @ 25°C	OC-WL-001	100 minutes

##### Recommended Cure Schedules:

24 hrs at 25°C or 1 hour at 65°C

Please note: any cure schedule selected for use should be confirmed through testing as being appropriate for your particular processing methods and for your intended application.

##### Cured Properties (cured 7 days at 25°C)

Appearance	Visual	Black
Specific Gravity	ASTM D-1475	1.47 g/cm <sup>3</sup>
Shore Hardness	ASTM D-2240	80D
Volume Shrinkage	ASTM D-792	2.84%
Tensile Strength at break	ASTM D-638	1.400 psi
Elongation at break	ASTM D-638	17%
Water absorption, 24 hours	ASTM D-570	0.27% by weight
Glass Transition Temp (T <sub>g</sub> )	Perkin Elmer Appl Case#20 ASTM E-381	30°C
Coefficient of thermal expansion (CTE) (per °C)		
Alpha 1 (<30°C) /		61 x 10 <sup>-6</sup>
Alpha 2 (>30-125°C)		140 x 10 <sup>-6</sup>
Thermal Conductivity	ASTM D-2214	14.8 x 10 <sup>-4</sup>
Flame retardance	UL 94 V-O	Passed
Volume Resistivity	ASTM D-257	3.90 x 10 <sup>15</sup> Ω-cm
Surface Resistivity	ASTM D-257	2.1 x 10 <sup>15</sup> Ω-cm
Dielectric Strength	ASTM D-149	425 volts/mil
Dielectric Constant, 60 Hz	ASTM D-150	5.47
Dissipation Factor, 60 Hz	ASTM D-150	0.0648

EpoPro 250 A/B is a black, flame retardant multi-purpose epoxy encapsulant. When fully cured this system produces a tough, rigid thermoset plastic. The formulation has been developed to demonstrate excellent air release for bubble free parts and is designed for either hand or meter-mix processing with a convenient 1:1 mix ratio. It is excellent choice for many encapsulating, potting embedding, and sealing applications and has a UL 94V0 flame retardance rating.

#### Suggested Applications:

- Potting and encapsulating electronic modules and components including : sensors, transformers, voltage regulators, relays, resistor networks, magnetic heads, and proximity switches
- Circuit board encapsulation

#### Benefits:

- 1 to 1 mix ratio by weight & volume
- Good air release
- Halogen free ("Green" or environmentally friendly system)
- Flame retardant, UL 94 V-O

#### Storage Guidelines:

Store these materials in a clean, dry environment in their tightly closed original container. These products are not considered temperature sensitive, but should ideally be stored at temperatures between 18-30°C (64-86°F). Under these conditions the products will have a minimum shelf-life of 12 months from the date of shipment. If exposed to cold for an extended period crystallization may occur in either the EpoPro 250A or B. If lumps or crystals are observed, heat for 2-4 hours at 50 - 60°C to melt the crystals and thoroughly re-mix before using. Do not use while still hot or the work life may be significantly reduced.

#### Processing Guidelines:

Mix using meter-mix dispensing equipment, or manually, as follows: Weigh the desired amount of resin into mixing container whose weight has been tared. If material has been heated, allow to cool to 25 ± 5°C (77 ± 9°F) before continuing. The pot life of mixed material will be shortened considerably if warm material is used.

Weigh the desired amount of hardener into mixing container with resin. Mix thoroughly by means of a

mechanical mixer or manual stirring. Check for uniform color as a sign of complete mixing.

Vacuum deairing is recommended to remove any entrapped air from the mixing procedure. To deair most products, 1-2 minutes under 28 inches of vacuum is recommended for each quart of volume of mixed material. After deairing, quickly dispense potting material into cavity or channel to be sealed.

To reduce the cure time, the parts or casting can be heated. To minimize shrinkage it is recommended to allow the material to gel at room temperature before applying heat to complete the cure. Often, however, small parts or casting (less than 100 grams of EpoPro 250A/B) can be processed and cured without waiting for the material to gel.

The suitability of immediate heat curing of masses larger than 100 grams will depend on a number of factors including the amount of EpoPro 250A/B in each part, the temperature being use and the construction of the part. If you are considering using an immediate heat cure, evaluate the results with test parts prior to implementing in production or give SP&S a call so that we can discuss your application and make suggestions on factors to consider. T

In case of humid environments ( $\geq 75\%$  relative humidity) it is advisable to complete the cure in an oven at 40-60°C or in a dessicator in order to prevent vapor absorption, leading to steaks on the surface of the casting.

#### **Handling Precautions:**

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

#### **Personal Hygiene:**

##### **EpoPro® 250A**

**Warning!** May cause eye irritation. Prolonged or repeated skin contact may cause irritation, and may cause skin reaction. Harmful if inhaled, if swallowed. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Wash thoroughly after handling. Avoid breathing vapor or mist. Keep containers closed when not in use. Use only with adequate ventilation.

##### **EpoPro® 250B**

**CAUTION!** Causes eye, skin, and respiratory irritations. Avoid breathing vapor or mist. Avoid contact with eyes, skin,, and clothing. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. In accord with good industrial practice, handle with due care.

#### **First Aid**

In case of contact:

**Skin** - Wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Discard contaminated shoes and other articles made of leather

**Eyes** - Flush eyes with plenty of water for 15 minutes and get prompt medical attention.

**Inhalation** - Remove person to fresh air

**Ingestion** - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

**Other**- Referral to a physician is recommended if there is any question about the seriousness of an injury.

#### **Disclaimer:**

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