

## EpoPro 225A/B and 225SF-A/B

### *Heat, Chemical, & Radiation Resistant, Epoxy Adhesive & Encapsulant*

EpoPro 225A/B is a two-part, epoxy adhesive that cures with heat to form a very tightly cross-linked polymer with exceptional heat, chemical, and radiation resistance. The EpoPro 225SF-A/B is a silica filled version of the standard 225A/B that is mechanically reinforced by the silica filler, has a lower CTE, and even better electrical properties. These systems can be used for heat resistant adhesive applications, for impregnating stators and alternators, for potting transformers, and for many other applications.

#### Benefits:

- High Heat Resistance (Glass transition temperature 220-240C)
- Exceptional Chemical Resistance
- Very Good Gamma Radiation Resistance

<b>HANDLING PROPERTIES</b>	<b>VALUE</b>	<b>TEST METHOD</b>
<u>EpoPro 225A</u>		
Visual Appearance	Brown liquid	
Density	1.17- 1.23 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part A, @ 25°C	35,000 cP	ASTM D-2393
Flash Point	> 200°C	ASTM D-92
<u>EpoPro 225B</u>		
Visual Appearance	Brown liquid	
Density	1.20 – 1.26 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part B, @ 25°C	450 cP	ASTM D-2393
Flash Point	> 200°C	ASTM D-92
<u>EpoPro 225SF- A</u>		
Visual Appearance	Brown liquid	
Density	1.56 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part A, @ 25°C	200,000 cP	ASTM D-2393
Flash Point	> 200°C	ASTM D-92
<u>EpoPro 225SF-B</u>		
Visual Appearance	Brown liquid	
Density	1.56 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part B, @ 25°C	15,000 cP	ASTM D-2393
Flash Point	> 200°C	ASTM D-92
<u>EpoPro 225A/B Mixed Properties</u>		
Mixed Viscosity	4,200 cP	
Mix Ratio	100A: 121B by weight	
Specific Gravity	1.19	

## EpoPro 225SF-A/B Mixed Properties

Mixed Viscosity	80,000 – 120,000 cP
Mix Ratio	1A: 1B by weight or volume
Specific Gravity	1.56

Shelf-life: at least 1 year @ room temperature (~ 25°C)

Pot life (100 grams)

at 25°C	24 hours or longer
at 90C	3.5 – 4 hours
at 120C	60 – 80 minutes
at 150C	12 – 18 minutes

Suggested Cure: 1 hour at 150°C + 2 hour at 200°C + 2 hour at 220°C + 2 hour at 250°C\*

\*Note: many other cure schedules are possible. Please contact us for assistance if you'd like to use an alternate cure schedule.

<b>PHYSICAL PROPERTIES</b>	<u>EpoPro 225A/B</u>	<u>EpoPro 225SFA/B</u>	<u>TEST METHOD</u>
Color	Dark Brown	Dark Brown	Visual
Shore D Hardness	94	96	ASTM D-2240
Tensile Strength	8,000 psi	10,800 psi	
Glass Transition Temp. (Tg)	230- 240°C	230- 240°C	
Coeff. Of thermal Exp. (CTE)	58 ppm/°C	36 ppm/°C	
Dielectric Constant:			
at 25°C	4.9	3.6	
at 50°C	5.0	3.8	
at 100°C	5.0	3.8	
at 150°C	5.0	3.8	
at 200°C	5.2	4.0	
at 220°C	5.3	4.2	
Dissipation Factor:			
at 25°C	0.004	0.0025	
at 50°C	0.005	0.0028	
at 100°C	0.005	0.0028	
at 150°C	0.010	0.0055	
at 200°C	0.037	0.022	
at 220°C	0.078	0.036	
Volume Resistivity (ohm-cm):			
at 25°C	3.8 x 10 <sup>15</sup>	1.0 x 10 <sup>16</sup>	
at 50°C	3.2 x 10 <sup>15</sup>	7.2 x 10 <sup>15</sup>	
at 100°C	1.7 x 10 <sup>14</sup>	2.4 x 10 <sup>15</sup>	
at 150°C	9.1 x 10 <sup>12</sup>	3.1 x 10 <sup>13</sup>	
at 200°C	5.0 x 10 <sup>11</sup>	1.0 x 10 <sup>12</sup>	
at 220°C	2.1 x 10 <sup>11</sup>	4.2 x 10 <sup>11</sup>	

**NOTE:** Typical Properties determined using EpoPro 225A/B and 225SF-A/B cured as suggested above. Values are based on laboratory or average production results – not for specification purposes.

## **SUGGESTED PROCESSING GUIDELINES:**

EpoPro 225A/B and 225SF-A/B can be applied by stiff brush, squeegee, knife, or spatula. These systems are also suitable for meter-mix dispensing.

For manual mixing, weigh Part A and Part B in the recommended ratio as accurately as possible into a clean mixing container. Always use weighing equipment having accuracy in proportion to the amounts being weighted. Blend by using a spatula or stirring stick for 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. It may be helpful to gently heat the components prior to mixing. Temperatures between 100°F – 125°F will provide a substantial reduction in viscosity, without a significant effect on the pot life of the mixed system.

Always apply the adhesive to clean, dry surfaces. For best bond strength, roughen surface to be bonded with wire brush, sand-blasting, etc. After roughening, clean and dry surface and remove and loose material prior to bonding. Optimal bond strengths are typically achieved with an adhesive bondline thickness of 3 – 5 mils. With the filled, EpoPro 225SF-A/B grade, bondlines thicker than 3-5 mils are possible without major reductions in mechanical strength of the bonds.

## **STORAGE GUIDELINES:**

Store this material in a clean, cool and dry environment in its tightly closed original container. Products may settle or separate during storage and should be thoroughly re-mixed prior to use. Avoid extended exposure to high humidity. Tightly re-seal after use. If the recommended storage conditions are observed the products will have a minimum shelf-life of 12 months from the date of shipment.

Please note that these materials may crystallize during shipment and or storage, especially if exposed to temperature below 60°F. If Crystallized, heat in the original container for 3-4 hours at 65°C (150°F) until all crystals have melted. Allow to cool to room temperature, then thoroughly mix the individual components in their containers prior to using.

## **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 225A and 225SF-A**

**WARNING!** Causes eye & skin irritation. Prolonged or repeated skin contact may cause allergic skin reaction. Harmful if inhaled or 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. Do not take internally.

### **EpoPro 225B and 225SF-B**

**WARNING!** Causes skin and eye irritation. May cause allergic skin and respiratory reactions. Harmful if inhaled or swallowed. Do NOT get in eyes, on skin, or clothing. Wear chemical splash goggles and impervious gloves when handling. Wash skin and clothing thoroughly after handling. Avoid breathing vapor or mist. Use only with adequate ventilation. Keep containers closed when not in use. Do NOT take internally.

## **FIRST AID**

In case of contact:

**Skin** – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather.

**Eyes** – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention.

**Inhalation** - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

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

## **DISCLAIMER:**

**IMPORTANT:** The following supercedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended

## **Specialty Polymers & Services, Inc. (SP&S)**

**27822 Fremont Court**

**Valencia, CA 91355**

**[www.spolymers.com](http://www.spolymers.com)**

**Tel: 661-294-1790**

**Fax : 661-294-0640**

**info@spolymers.com**