

## EpoPro<sup>®</sup> 202A/112B (Replaces EpoPro<sup>®</sup> 202A/9615) TOUGH EPOXY ADHESIVE, ENCAPSULATING & CASTING SYSTEM

EpoPro<sup>®</sup> 202A with EpoPro<sup>®</sup> 112B is a tough, semi-flexible, medium viscosity, epoxy system. It cures at room temperature or can be accelerated with heat. The cure polymer demonstrates exceptional toughness and outstanding adhesion to many different materials. One special property of this system is that its mix ratio can be varied to control the flexibility and other properties of the cured system.

The EpoPro 202A/112B system was developed to replace the EpoPro 202A/9615 system when the Hardener 9615 became obsolete. The two system are chemically equivalent and provide equivalent performance. This system is available in custom colors, alternate work-lives, and modified viscosities by request. Please contact us to discuss your application if you think such a variant would be helpful for your application.

### SUGGESTED APPLICATIONS:

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| <ul style="list-style-type: none"> <li>• Excellent adhesive with flexibility variable by varying the mix ratio</li> </ul>                        |
| <ul style="list-style-type: none"> <li>• Tough room temperature curing encapsulant also excellent as a circuit board embedding system</li> </ul> |

<b>HANDLING PROPERTIES</b>	<b>VALUE</b>	<b>TEST METHOD</b>
<u>EpoPro 202A</u>		
Visual Appearance	Clear to light yellow liquid	
Density, Part A	1.10 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part A, at 25°C	2,200 cps	ASTM D-2393
Flash Point	>182°C (>360°F)	ASTM D-92
<u>Hardener 112B</u>		
Visual Appearance	Amber liquid	
Density,	1.08 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part B, at 25°C	35,000 cps	ASTM D-2393
Flash Point	>182°C (>360°F)	ASTM D-92

	<b>100:60</b>	<b>100:100</b>	<b>100:150</b>	
Mix Ratio (part by weight)				
Viscosity Mixed at 25°C	9300 cps	10,200cps	11,000 cps	ASTM D-2393
Pot life (100 grams) at 25°C	160 minutes	100 minutes	140 minutes	
Cure time at 25°C	24-48 hours	24-48 hours	24-48 hours	
Cure time at 60°C	3-4 hours	3-4 hours	3-4 hours	

<b>PHYSICAL PROPERTIES</b> (Tested at 25C unless otherwise noted)				
Mix Ratio (part by weight)	<b>100:60</b>	<b>100:100</b>	<b>100:150</b>	<u>TEST METHOD</u>
Appearance	Translucent, yellow to amber			Visual
Hardness, Shore D				ASTM D-2240
At 25°C / At 93 °C /At 150°C	78/ 30 /20	68/ - / -	30 / 13 /10	
Tensile Strength	3000 psi	2800 psi	800 psi	ASTM D-638
Tensile Elongation	5%	30%	45%	ASTM D-638
Flexural Strength	5300 psi			
Izod Impact Strength (Ft-lb of notch)	-	0.65		ASTM D-256
Thermal Shock test (Olympant Washer), cycle from 100°C to -55°C	Passes 2 cycles	Passes 5 cycles	Pass >10 cycles	
Glass Transition Temperature (T <sub>g</sub> )	26°C	29°C	28°C	ASTM D-648
Coefficient of Thermal Expansion (CTE):				ASTM E-831
Above T <sub>g</sub> / below T <sub>g</sub> (ppm/°C)	80 / 171	95 / 210	106 / 556	
Weight loss after 48 hrs. at 150°C	0.44%	0.52%	0.63%	
Moisture absorption (24 hour immersion - % weight gain)	0.37%	0.92%	3.2%	ASTM D-570
Thermal Conductivity	0.18 W/mK	0.18 W/mK	0.18 W/mK	ASTM D-2214
Thermal Rating	105°C-130°C	105°C	90°C	EIC 216
Fungus Resistance	Non-Nutrient	Non-Nutrient	Non-Nutrient	Mil-I-46058C
Insulation Resistance (ohms)	>1.0 x 10 <sup>13</sup>	3.0 x 10 <sup>12</sup>	-	Mil-I-46058C
Dielectric Strength (V/mil)	-	350	-	ASTM D-149
Dielectric Constant at 25C				ASTM D-150
at 60 Hz / 10 KHz / 1 MHz	3.3 / 3.0 / 2.9	4.2 / 3.6 / 3.1	7.4 / 4.7 / 3.6	
Dissipation Factor at 25C				ASTM D-150
at 60 Hz / 10 KHz / 1 MHz	0.01 / 0.02 / 0.02	0.04 / 0.34 / 0.32	0.29 / 0.1 / 0.07	

**NOTE :** Values are based on laboratory or average production results – not for specification purposes.

### **SUGGESTED PROCESSING GUIDELINES:**

To use, weigh Part A and Part B in the ratio you have selected into a clean mixing container. Mixing containers should preferably be made of polypropylene, polyethylene, glass, or non-corroding metal. (Stainless steel, aluminum, etc.). Always use weighing equipment having accuracy that is ±1% or less of the smallest quantity that you will be weighing. Blend Part A & B thoroughly by using a spatula or stirring stick for at least 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Vacuum de-gassing after mixing may be helpful for best electrical and physical properties.

Apply to clean, dry surfaces. For best adhesion, abrade the surface with a wire brush, scouring pad, steel wool or coarse sandpaper. After abrasion, clean the surface of any loose material and degrease with solvent or detergent to remove any contaminants. The material may then be applied with any suitable application method include brushes, spatulas, trowels, etc.

## **STORAGE GUIDELINES:**

Store these materials in a clean, cool and dry environment in their tightly closed original containers. Protect from extended exposure to temperatures below 15°C (59°F). Crystallization may occur if the material is exposed to cold for extended periods. If this occurs, heat the entire container of 202A or 112B for 4 hours at 70°C to re-liquefy the material. Allow to cool to ambient temperature prior to using. Also protect the 202A & 9615 from exposure to moisture or high humidity. Tightly re-seal containers 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.

## **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 202A**

**CAUTION!** May cause eye & skin irritation. Prolonged or repeated skin contact or inhalation of vapors may cause allergic skin or respiratory reactions. 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 112B**

**WARNING!** May cause eye & skin irritation. Prolonged or repeated skin contact or inhalation of vapors may cause allergic skin or respiratory reactions. 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.

## **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 supersedes 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

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