

EpoPro 2223A/B

Multipurpose, Shock resistant Epoxy Encapsulating System

EpoPro® 2223A/B is room temperature curing encapsulation system which produces tough castings with excellent thermal cycling performance and good adhesion to most surfaces. This system has medium, flowable viscosity with good self-leveling properties and good air release to reduce voids in the casting. It is commonly used for encapsulating small components and for capacitor end filling. The cured polymer has minimal curing shrinkage, good mechanical properties, and is resistant to moisture and many chemicals. This system meets the requirements of Mil-I-16923

Alternate hardeners are available to achieve faster or slower cures than the standard EpoPro 2223A/B system. Custom colors and other modifications are also possible. Please contact us to discuss your application if you think a modified version might be needed for your application.

TYPICAL APPLICATIONS

- Encapsulation of electronic components
- Capacitor End-filling
- Potting Coils & Windings

HANDLING PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
<u>EpoPro 2223A</u>		
Appearance	Black Liquid	Visual
Density	1.70 g/cm ³	ASTM E-201
Viscosity @ 25°C	48,000 cps	ASTM D-2393
<u>EpoPro 2223B</u>		
Appearance	Amber Liquid	Visual
Density	1.00 g/cm ³	ASTM E-201
Viscosity @ 25°C	400 cps	ASTM D-2393
Mix Ratio by Weight	100A:10B	Calculated
Mix Ratio by Volume	6A:1B	Calculated
Viscosity Mixed @ 25°C / @ 40°C	20,700 cps	ASTM D-2393
Viscosity Mixed @ 40°C / @ 40°C	2,400 cps	ASTM D-2393
Gel Time @ 25°C, 100g mass	2 hours	ASTM D-2471
Gel Time @ 65°C, 20g mass	23 minutes	ASTM D-2471
Recommended Cure Schedules:	24 hrs. @ 25°C or cure for 2 hrs @ 65°C	

PHYSICAL PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
Color	Black*	Visual

Product Datasheet



Density	1.58 g/cm ³	ASTM E-201
Shore Hardness	85D	ASTM D-2240
Tensile Strength	6,300 psi	ASTM D-638
Tensile Elongation at break	2.1%	ASTM D-638
Compressive Strength	13,000 psi	ASTM D-695
Flexural Strength	9,700 psi	ASTM D-790
Glass Transition Temp. (T _g)	53°C	
Coefficient of Thermal Expansion		ASTM D-1674
-55 °C to +50 °C	57 ppm/ °C	
Thermal Shock (-55 °C to 150°C)	Passes 10 cycles	Olyphant Washer
Linear Curing shrinkage	0.05%	ASTM D-2566
Thermal Conductivity	0.24 W/mK	ASTM D-1674
Moisture Absorption		ASTM D -570
2 hours @ 100°C	0.20%	
24 hours @ 25°C	0.07%	
Flame Retardance	1.6 in/min	UL 94HB

* custom colors available by request.

ELECTRICAL PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
Arc Resistance	123 seconds	ASTM D-495
Dielectric Strength, V/mil	350	ASTM D-149
Volume Resistivity @ 25°C	1.2 x 10 ¹⁵ ohm-cm	ASTM D-257
Volume Resistivity @ 95°C	3.3 x 10 ⁹ ohm-cm	ASTM D-257
Dielectric Constant, 60 Hz / 1 MHz	4.7 / 4.2	ASTM D-150
Dissipation Factor, 60 Hz / 1 MHz	0.029 / 0.24	ASTM D-150

NOTE : Typical Properties determined using EpoPro 2223A/B cured for 7 days @ 25°C. Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

EpoPro 2223A/B can be applied by pouring, brushing, injection from a syringe, or by dipping components into the mixed system. It is also suitable for meter-mix dispensing and can be supplied in premixed and frozen syringes for small volume applications.

The EpoPro 2223tA is a filled resin may slightly settle or separate during shipping and storage. Be sure to thoroughly re-mix the 2223A prior to use. It can be re-mixed using a spatula or by placing on a paint shaker for about 5-10 minutes. When ready to use, weigh the resin and hardener 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 weighed – ideally the accuracy of the scale should be less than 1% of the mass being weighed. Blend by using a spatula or stirring stick for 2-3 minutes using a figure eight motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mix. For bubble free parts, vacuum degas the mixture prior to use at 28 inches of mercury or greater. For best adhesion apply to clean, dry surfaces.

STORAGE GUIDELINES:

Store this material in a clean, cool and dry environment in its tightly closed original container. Products may settle 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.

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 2223A

CAUTION! May cause eye irritation. Prolonged or repeated skin contact may cause irritation, may cause allergic skin reaction. 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 2223B

WARNING! May 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

Tel - 661-294-1790
Fax - 661-294-0640
info@spolymers.com