

EpoPro 223FR-A/C

Low Viscosity, Flame Retardant, Epoxy Potting System

EpoPro® 223FR-A/C is a low viscosity, room temperature curing encapsulation system which produces tough castings and has good adhesion to most surfaces. This system is designed to provide a low viscosity and good air release so that it will penetrate fine windings, fill cracks and voids and provide a good environmental seal and mechanical reinforcement for the potted parts. The cured polymer is resistant to moisture and chemical attack and has good thermal shock and impact resistance.

Alternate hardeners are available to achieve faster or slower cures than the standard EpoPro 223FR-A/C system. An even low viscosity version is available as EpoPro 223FR-A/B. Please contact us to discuss your application if you think a modified version might be needed for your application.

TYPICAL APPLICATIONS

- General potting of electronic devices
- Potting of fine wire wind devices
- Sealing voids and cracks

HANDLING PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
<u>EpoPro 223FR-A</u>		
Appearance	Yellow opaque Liquid	
Density, g/cm ³	1.44	ASTM E-201
Viscosity @ 25°C, cps	2,200	ASTM D-2393
<u>EpoPro 223FR-C</u>		
Appearance	Transparent Amber Liquid	
Density, g/cm ³	1.44	ASTM E-201
Viscosity @ 25°C, cps	4,500	ASTM D-2393
Mix Ratio By Weight	1A:1B	Calculated
Mix Ratio By Volume	1A:1B	Calculated
Viscosity Mixed @ 25°C / @ 40°C, cps	3500 / 980	ASTM D-2393
Gel Time @ 25°C, 100g mass	45 minutes	ASTM D-2471
Recommended Cure Schedules:	24 hrs. @ 25°C or allow to gel (~1 hour @ 25°C) then cure for 3 hrs @ 65°C or 1-2 hrs @ 80°C	

PHYSICAL PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
Color	Off-white*	Visual
Density, g/cm ³	1.45	ASTM E-201
Shore Hardness	78D	ASTM D-2240
Tensile Strength, psi	9,000	ASTM D-638

Product Datasheet



Tensile Elongation at break	4%	ASTM D-638
Thermal Conductivity, W/mK	0.72	ASTM D-2214
Glass Transition Temp. (Tg)	55 °C	ASTM E-381
Flame Retardance	Self-extinguishing - complies with UL 94V0 at 6mm	

*Black, white, and custom colors available by request.

ELECTRICAL PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
Electrolytic Corrosion	Grade A-1	DIN 53489
Dielectric Strength, V/mil	>500	ASTM D-149
Volume Resistivity, ohm-cm	1.2×10^{15}	ASTM D-257
Dielectric Constant, 60 Hz	4.1	ASTM D-150
Dissipation Factor, 60 Hz	0.01	ASTM D-150

NOTE : Typical Properties determined using EpoPro 223FR-A/C cured for 7 days @ 25°C. Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

EpoPro 223FR-A/C can be applied by pouring, brushing, injection from a syringe, or by spraying or dipping components into the mixture. It is also suitable for meter-mix dispensing and can be supplied in premixed and frozen syringes for small volume applications.

The EpoPro 223FR-A & 223FR-C are filled compounds and because of their low viscosity the filler may settle to the bottom of the container during shipping and storage. Be sure to thoroughly re-mix the 223FR-A & -C prior to using with a spatula or by placing on a paint shaker for 10-15 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 weighted – 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 kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. 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 223FR – Part A

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 223FR – Part C

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.

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