Product Datasheet

SP&S Specialty Polymers and Services

EpoPro 222A/ HY 956

Tough, Room Temperature Curing, Epoxy Encapsulatingt System

EpoPro® 222 with Hardener HY 956 is a low to medium viscosity, room temperature curing encapsulation system which produces tough castings. This system is designed as an excellent general-purpose casting system, particularly where pressure-sensitive components are to be encapsulated or where thermal shock or crack resistance is required. The cured polymer is resistant to heat aging and to cryogenic exposure to at least -40ºC.

EpoPro 222A/HY 956 has been used for both impregnating and casting electrical components. Its viscosity allows the user to impregnate coils or fill tightly spaced components without too much difficulty and makes relatively easier to achieve a bubble free casting. It is also suitable as a binder for silica flour, sand or other fillers used in electrical insulating applications.

Alternate hardeners are available to achieve faster or slower cures than the standard EpoPro 222A/ HY 956 system. A more flexibilized and lower viscosity version of the same product is available as EpoPro 221A/HY 956 and can be blended to achieve custom viscosity or flexibility. Colored and mineral filled versions are also available on request. 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
- Encapsulation of stress-sensitive components
- Low-voltage encapsulation

HANDLING PROPERTIES

	VALUE	TEST METHOD
EpoPro 222A		
Density, g/cm³	1.15	ASTM E-201
Viscosity @ 25ºC, cps	4500	ASTM D-2393
Hardener HY 956		
Density, g/cm³	1.02	ASTM E-201
Viscosity @ 25ºC, cps	180	ASTM D-2393
Mix Ratio By Weight	100A:25B	Calculated
Mix Ratio By Volume	100A:28B	Calculated
Viscosity Mixed @ 25ºC / @ 40ºC, cps	2200 / 650	ASTM D-2393
Time for 100g to reach 5000 cP @ 25ºC	25 minutes	
Gel Time @ 25ºC, 100g mass	30 - 45 minutes	ASTM D-2471
Recommended Cure Schedules:	24 hrs. @ 25ºC **or** allow to gel (~45 min @ 25ºC) then cure for 3 hrs @ 65ºC or 1-2 hrs @ 80ºC	

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PHYSICAL PROPERTIES	VALUE	TEST METHOD
Color	Light yellow	Visual
Density, g/cm³	1.10	ASTM E-201
Shore Hardness	78D	ASTM D-2240
Tensile Strength, psi	12,000	ASTM D-638
Tensile Elongation at break	6%	ASTM D-638
Water Absorption, % by weight		
10 days @ 25ºC	0.35%	ASTM D-570
1 hr @ 100ºC	0.65%	
Glass Transition Temp. (Tg)	85 ºC	
Coefficient of Thermal Exp. (CTE)	60 ppm/ºC	ASTM E -381
Curing Shrinkage	0.16%	ASTM D-792

ELECTRICAL PROPERTIES	VALUE			TEST METHOD
Electrolytic Corrosion	Grade A-1			DIN 53489
Dielectric Strength, V/mil	>600			ASTM D-149
	@23°C	@40°C	@80°C	
Volume Resistivity, ohm-cm	2.1×10^{16}	3×10^{15}	1.5×10^{12}	ASTM D-257
Dielectric Constant, 60 Hz	4.1	4.1	5.8	ASTM D-150
Dielectric Constant, 1 MHz	3.0	-	-	ASTM D-150
Dissipitation Factor, 60 Hz	0.008	0.008	0.04	ASTM D-150
Dissipitation Factor, 1M Hz	0.01	-	-	ASTM D-150

NOTE : Typical Properties determined using EpoPro 222A/HY 956 cured for for 48 hours @ 25ºC. Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

EpoPro 222A/HY 956 can be applied by pouring, brushing, roller, squeegee, knife, spatula, or by spraying or dipping. It is also suitable for meter-mix dispensing and can be supplied in premixed and frozen syringes for small volume applications.

Weigh 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 best adhesion apply to clean, dry surfaces. Allow to cure at room temperature for 24-48 hours or allow to set at 25ºC for 3-4 hours then heat cure at 65ºC cure for 4 hours. For small volume application immediate heat cures may be possible and more rapid cures may be possible at higher temperatures. If you would like recommendation on alternate cures please

contact us. Always evaluate a suggested cure schedule in your application prior to implementing it for full scale production as each application unique conditions can effect the results.

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 222A

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.

Hardener HY 956

WARNING! Causes skin and eye irritaion. 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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