Product Datasheet

SP&S Specialty Polymers and Services

EpoPro 243A / HY 844

Flame Retardant, High Voltage Epoxy Encapsulating System

EpoPro® 243A resin with Hardener HY 844 is a low viscosity, semi-flexible encapsulation system which produces tough castings with very good thermal aging and shock resistance. This system is designed as an excellent general-purpose electrical casting system, particularly where pressure-sensitive components are to be encapsulated or where thermal shock or crack resistance is required. The EpoPro 243A/HY 844 system has low shrinkage and good adhesion to most common materials including many plastics.

Many variations on this system are available include custom colors, faster or slower cure speeds, adjustments to the viscosity or flow rate or the addition of specialty adhesion promoters to increase the bond strength to particular materials. Please contact us to discuss your application if you think a modified version might be needed for your application.

TYPICAL APPLICATIONS

- UL 94VO Compliant
- Moisture & Chemical Resistant
- Excellent Dielectric Properties

HANDLING PROPERTIES

	VALUE	TEST METHOD
EpoPro 243A		
Appearance	Off-white liquid	
Density, g/cm³	1.63	ASTM E-201
Viscosity at 25ºC, cps	35,000	ASTM D-2393
Hardener HY 844		
Appearance	Amber liquid	
Density, g/cm³	0.97	ASTM E-201
Viscosity at 25ºC, cps	350	ASTM D-2393
Mix Ratio By Weight	100A:20B	Calculated
Mix Ratio By Volume	100A:33B	Calculated
Viscosity Mixed at 25ºC, cps	2200	ASTM D-2393
Viscosity Mixed at 40ºC, cps	950	
Gel Time at 25ºC, 100g mass	60 - 90 minutes	ASTM D-2471

Recommended Cure Schedules: 24 hrs. at 25ºC **or** allow to gel (2-3 hrs at 25ºC) then heat cure for 4 hours at 65ºC **or** 2 hours at 80ºC **or** 1 hour at 95º-100ºC .

PHYSICAL PROPERTIES

	VALUE	TEST METHOD
Color	light tan	Visual
Density, g/cm³	1.50	ASTM E-201
Shore Hardness	68D	ASTM D-2240
Tensile Strength	2000 psi	ASTM D-638
Tensile Elongation at break	15%	ASTM D-638

Elastic Modulus (by tensile)	2900 psi	
Water Absorption, % by weight		
After 24 hours at 25ºC	0.24%	ASTM D-638
Glass Transition Temp. (Tg)	37ºC	by DSC
Coefficient of Thermal Expansion		
Alpha 1 (below Tg)	62 ppm / ºC	DIN 53 752
Alpha 2 (above Tg)	148 ppm / ºC	
Flame Retardance	self-extinguishing at 6mm	UL 94V0
Thermal Conductivity	0. 65 W/mK	DIN 52 612
Shrinkage, in/in	<0.0001	ASTM D-2566

ELECTRICAL PROPERTIES

	VALUE			TEST METHOD
Tracking Resistance	CTI > 600			IEC 112
Electrolytic Corrosion	AN/1.2			DIN 53489
Dielectric Strength, kV/mm	≥ 16			ASTM D-149
	at 23°C	at 40°C	at 50°C	
Volume Resistivity, ohm-cm	2.4×10^{14}	8×10^{13}	1×10^{12}	ASTM D-257
Dielectric Constant, @ 60Hz	5.3	6.8	7.4	ASTM D-150
Dissipitation Factor @ 60Hz	0.063	0.084	0.098	ASTM D-150
Dielectric Constant, @ 1 MHz	4.6			ASTM D-150
Dissipitation Factor @ 60Hz	0.051			ASTM D-150

NOTE: Typical Properties determined using EpoPro 243A/HY 84 cured for 2 hours at 80ºC. Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

EpoPro 243A/HY 844 is typically applied by pouring or dispensing into the parts to be potted. It is suitable for meter-mix dispensing and can be supplied in premixed and frozen syringes for small volume applications. The fillers in the EpoPro 243A are non-abrasive (Moh Hardness of 3 or less) and so only conventional pumping equipment is needed to meter-mix dispense this system and components that come in contact with the resin should not require frequent replacement.

Weigh resin and hardener in the recommended ratio 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 at least 24 hours or allow to set at 25ºC for 3 hours then heat cure at 65ºC cure for at least 4 hours. For some small volume application, an immediate heat cures may be possible without allowing the material to first gel at room temperature. However, allowing for a room temperature gelation will reduce shrinkage of the system so this is highly recommended for stress-sensitive applications. More rapid cures are 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 production as each applications unique conditions can affect the results achieved.

STORAGE GUIDELINES:

Store this material in a clean, cool and dry environment in its tightly closed original container. The EpoPro 243A may settle or separate slightly during shipment or storage and should be 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 243A 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 844 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

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