Product Datasheet

SP&S Specialty Polymers and Services

EpoPro® 240A/HY956

EPOXY ADHESIVE & ENCAPSULANT

The EpoPro® 240A/HY 956 system is a two part epoxy system that cures at room temperature into a tough, environmental and chemical resistant polymer with outstanding electrical and mechanical properties. The system demonstrates low shrinkage, a low coefficient of thermal expansion and excellent resistance to thermal cycling. The cured polymer is dimensionally stable, machinable, and provides high bond strengths to most materials.

Many variations on the EpoPro 240A/HY 956 system are available upon request, including custom colors, adjusted viscosities, work-lives & curing speeds, and many other special properties. Please contact us to discuss your application if you think such a variant would be helpful for your application.

SUGGESTED APPLICATIONS:

- Adhesive application where a low CTE and good thermal cycling performance is desirable.
- Excellent encapsulant or casting systems for electrical components. Provides very good crack resistance, a wide temperature range of use and excellent electrical and mechanical properties.

HANDLING PROPERTIES	VALUE	TEST METHOD
EpoPro 240A		
Visual Appearance	Tan filled liquid*	
Density, Part A	1.70 g/cm³	ASTM E-201
Viscosity, Part A, @ 25ºC	105,000 cps	ASTM D-2393
Flash Point	>135°C	ASTM D-92
Hardener HY 956		
Visual Appearance	Light yellow liquid	
Density,	1.01 g/cm³	ASTM E-201
Viscosity, Part B, @ 25ºC	350 cps	ASTM D-2393
Flash Point	>93°C	ASTM D-92
Mix Ratio (part by weight)	100:10	
Mix Ratio (parts by volume)	6:1 (100:16.667)	
Viscosity Mixed @ 25ºC	18,000 cps	
Viscosity Mixed @ 50ºC	1,200 cps	
Viscosity Mixed @ 70ºC	800 cps	
Gel time, 70 grams @ 25ºC:	45 minutes	
Suggested Cure Conditions:	24 – 48 hours @ room temperature **or** 2-4 hours @ 65ºC	
Many of curing variables can be adjusted to suit your specific application details. Please contact use for a recommendation on optimizing your curing process.		

*Blue & Black colors are also standard. Custom colors by request.

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PHYSICAL PROPERTIES (Tested at 25C unless otherwise noted)		
		TEST METHOD
Appearance		Visual
Density	1.56 g/ml	ASTM D792
Hardness, Shore D	88	ASTM D-2240
Tensile Strength	6,000 psi	ASTM D-638
Tensile Elongation	2%	ASTM D-638
Compressive Strength	17,000 psi	ASTM D-790
Flexural Strength	11,000 psi	ASTM D-695
Glass Transition Temperature (Tg)	45ºC	ASTM D-648
Coefficient of Thermal Expansion (CTE):		ASTM E-831
Above Tg / below Tg (ppm/ºC)	43 / 112	
Moisture absorption (24 hours immersion @ 25C- % weight gain)	0.2%	ASTM D-570
Thermal Conductivity	0.66 W/mK	ASTM D-2214
Thermal Rating	-40ºC to + 130ºC	EIC 216
Volume Resistivity @ 25ºC	2 x 10^{15} ohms-cm	Mil-I-46058C
Dielectric Strength (1/8" thick)	450 V/mil	ASTM D-149
Dielectric Constant @ 25ºC & 1MHz	4.0	ASTM D-150
Dissipitation Factor @ 25ºC & 1MHz	0.05	ASTM D-150
Outgassing:		ASTM E 595 / NASA pub 1124
TML %	0.4%	
CCVM%	0.04%	

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

SUGGESTED PROCESSING GUIDELINES:

Prior to use check the EpoPro 240A for settling or separation which can occur during shipping or storage. Re-mix until uniform prior to use using a paint stirrer, drill mixer, or paint shaker.

When ready to use, weigh the 240A and Hy 956 in the recommended ratio into a clean mixing container. 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 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 help to provide the best electrical and physical properties in the cured polymer.

Apply to clean, dry surfaces. For best adhesion, abrade the surface with a wire brush, scouring pad, steel wool or coarse sand paper. After abrasion, clean the surface of any loose material and degrease with solvent or detergents to remove any contaminants. The EpoPro 240A/Hy 956 may then be applied with any suitable application method include brushes, spatulas, 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 15ºC (59ºF). Crystallization may occur if the material is

exposed to cold for extend periods. If this occurs, heat the entire container of 240A or Hy 956 for 4 hours at 70ºC to re-liquefy the material. Allow to cool to ambient temperature and re-mix prior to using. Also protect the EpoPro 240A & Hy 956 from exposure to moisture or high humidity – keep contains tightly sealed when not in use and use a desiccant if extended exposure to moisture may occur. 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 240A

CAUTION! May cause eye & skin irritation. Prolonged or repeated skin contact may cause allergic skin 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.

Hardener HY 956

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 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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