Product Datasheet

SP&S Specialty Polymers and Services

EpoPro 8704FR -A/B

Thermally Conductive, Flame Retardant, Epoxy Encapsulant

EpoPro 8704FR-A/B is a two-part epoxy encapsulant that combines excellent thermal conductivity with flame retardance and a good balance of mechanical and electrical insulating properties. It cures at room temperature or with heat to form a polymer with excellent heat, environmental and chemical resistance. It is excellent for potting or encapsulating power suppliers, voltage regulators, and many other types of components.

Benefits:

- Complies with UL 94VO flammability requirements
- Excellent Thermal Conductivity
- Very Good Chemical, Environmental, and Heat Resistance

HANDLING PROPERTIES	VALUE	TEST METHOD
EpoPro 8704FR-A		
Visual Appearance	Black liquid	
Density	2.11 g/cm³	ASTM E-201
Viscosity, Part A, @ 25ºC	200,000 cP	ASTM D-2393
Flash Point	> 200°C	ASTM D-92
EpoPro 8704FR-B		
Visual Appearance	Amber liquid	
Density	1.016 g/cm³	ASTM E-201
Viscosity, Part B, @ 25ºC	40 cP	ASTM D-2393
Flash Point	> 127°C	ASTM D-92
Mixed Properties		
Mixed Viscosity	6,500 cP	
Mix Ratio	100A: 7B by weight or 100A:15B by volume	
Specific Gravity	2.05	
Shelf-life:	at least 1 year at room temperature (~ 25ºC)	
Pot life (100 grams) at 25ºC	120 minutes	
Suggested Cure: 24 - 48 hours at 25°C or 2 hours at 65°C*		

*Note: many other cure schedules are possible. Please contact us for assistance if you'd like to use an alternate cure schedule.

PHYSICAL PROPERTIES		TEST METHOD
Color	Black	Visual
Shore D Hardness	90D	ASTM D-2240
Tensile Strength	8,000 psi	ASTM D-638
Glass Transition Temp. (Tg)	65ºC	
Coeff. Of thermal Exp. (CTE)	45 ppm/ºC	ASTM E-381
Thermal Conductivity	1.0 W/mK	ASTM D-638
Flame Retardance	Complies with UL 94V0 Requirements	
Dielectric Constant 25ºC		ASTM D-150
60 Hz / 1 MHz	4.8 / 4.6	
Dissipitation Factor at 25ºC		ASTM D-150
60 Hz / 1 MHz	0.058 / 0.018	
Volume Resistivity (ohm-cm)at 25ºC	1.8×10^{15}	ASTM D-257

NOTE: Typical Properties determined using EpoPro 8704FR-A/B cured as suggested above. Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

To use this material, thoroughly mix the materials using meter-mix equipment or manually as follows: weigh Part A and Part B 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. 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 thermal conductivity and best electrical and mechanical properties, vacuum de-gas the mixture prior to potting or encapsulation. A vacuum level of 29 inches of mercury or greater is generally sufficient to de-air the mixed material. Once de-aired, pour or the materials into the housing or mold in a thin continuous stream.

Once the part is potted the material can be allowed to cure over night or may be heat cured. If heat curing, allowing the epoxy to solidly gelled (ie. about 2-4 hours at room temperature or longer) prior to applying heat will help to reduce shrinkage and pressure on any embedded components

STORAGE GUIDELINES:

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

Please note that the 8704FR part A is mineral filled and the fillers may settle during shipment or storage. Re-mix the 8704FR part A thoroughly prior to use. This can be done by hand using a metal spatula or on a paint shaker. It is also possible for both components to crystallize if exposed to extended low temperatures. Crystallization will show up as an increase in viscosity, a

change in color, or a granular appearance. If Crystallized, heat in the original container for 3-4 hours at 65ºC (150ºF) until all crystals have melted. Allow to cool to room temperature, then thoroughly mix the individual components in their containers prior to using.

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 8704FR-A

WARNING! Causes eye & skin irritation. Prolonged or repeated skin contact may cause allergic skin reaction. 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.

EpoPro 8704FR-B

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

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