Product Datasheet

SP&S
Specialty Polymers and Services

EpoPro 8704A/HW9029

Thermally Conductivity, Heat Resistant Epoxy System

EpoPro 8704A with Hardener HW 9029 is a system with an excellent balance of thermal conductivity and mechanical properties including excellent thermal cycling and thermal shock resistance. It is an easy to use, system available in black and many custom colors and can be used for large or small potting and casting applications. EpoPro 8704A/HW 9029 adheres well to most metals and many plastics and provides exceptional chemical and environmental resistance.

TYPICAL APPLICATIONS

- Transformers
- Relays
- Automotive Modules

HANDLING PROPERTIES

	VALUE	TEST METHOD
Density Mixed, g/cm³	2.30	ASTM E-201
Viscosity Mixed @ 25ºC, cps	75,000	ASTM D-2393
Viscosity Mixed @ 60ºC, cps	1,000 – 3,000	ASTM D-2393
Mix Ratio By Weight	100A:100B	Calculated
Mix Ratio By Volume	100A:120B	Calculated
Gel Time @ 25ºC, 100g mass	>8 hours	ASTM D-2471
Gel time @ 120ºC, 100 g mass	20 – 35 minutes	ASTM D-2471
Recommended Cure Schedules:	See below	

PHYSICAL PROPERTIES

	VALUE	TEST METHOD
Color	Black* (*custom colors available)	Visual
Shore D Hardness	90	ASTM D-2240
Tensile Strength, psi	10,000	ASTM D-638
Tensile Elongation at break	1.2%	ASTM D-638
Flexural Strength, psi	14,000	ASTM D-638
Compressive Strength, psi	18,000	ASTM D-695
Glass Transition Temperature, ºC	110 - 120	ASTM E-381
Coefficient of Thermal Expansion	35 ppm/ºC	ASTM E-381
Shrinkage, in/in	<0.0002	ASTM D-2566
Thermal Conductivity, W/mK	1.2	ASTM D-2214

ELECTRICAL PROPERTIES

	VALUE	TEST METHOD
Volume Resistivity @ 25ºC, ohm-cm	$\geq 10^{15}$	ASTM D-257
Dielectric Constant @ 25ºC, 50 Hz	4.5	ASTM D-150

Dissipitation Factor @ 25ºC, 50 Hz	0.060	ASTM D-150
Dielectric Strength, volts/mil	≥ 500	ASTM D-149

NOTE : Typical Properties determined using EpoPro 8704A/HW 9029 cured for 2 hours @ 80ºC + 6 hours @ 140ºC. Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

EpoPro 8704A/ HW 9029 can be manually applied by knife, spatula, injection, dipping or pouring. It is suitable for meter-mix dispensing and can be supplied in premixed and frozen syringes for small volume applications. For meter-mix applications the 8704A is considered to contain an abrasive filler and so should be used with abrasion resistant equipment.

Before each use, stir the individual containers of EpoPro 8704A & Hardener HW 9029 to ensure that all of the mineral fillers are thoroughly dispersed and have not settled or separated during storage or transportation. When ready, 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.

Heating the mixed material or the individual components to 50ºC -60ºC will make it easier to mix and the mixed system will have an open time of at least 6 hours at these temperatures. However, the material should be continually stirred or mixed to prevent separation which can occur more quickly at elevated temperatures. Once ready to use, pour or dispense the mixed material into your parts. Vacuum degassing the material before or after application is recommended for best electrical and mechanical performance.

Once degassed, cure using the following cure schedules:

For small parts (thin sections or less than about 1 lbs. of mixed material per part). First gel the epoxy by curing for 4 hours at 80ºC or 2 hours at 100ºC, then post cure for 2-6 hours at 140ºC or 10 hours at 130ºC.

For large castings (more than 1 lbs. of mixed material), first gel the material using a slow temperature ramp from ambient conditions (or 50ºC - 60ºC if using pre-heated material) up to 140ºC. Ramp evenly over 16 – 24 hours. (Ramp rate of about 4 – 8 degrees Celsius per hour). Once at 140ºC, post cure for 4 hours then slowly cool to 100ºC or below over several hours prior to demolding. (The slower the ramp down the less the chance for thermal cracking or the build up of thermal stress during cooling.)

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 8704A
CAUTION! May cause eye irritation. Prolonged or repeated skin contact may cause irritation, 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.

Hardener HW 9029
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:

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