

## Epocast<sup>®</sup> 50-A1 Resin / Hardener 9816

### Product Description

Epocast<sup>®</sup> 50-A1 Resin / Hardener 9816 epoxy laminating system is an unfilled, solvent-free, easy-to-handle material for the manufacture or repair of composite structures as well as for filament winding. Epocast<sup>®</sup> 50-A1 Resin / Hardener 9816 epoxy laminating system is flame retardant. Epocast<sup>®</sup> 50-A1 / Hardener 9816 is qualified to BMS 8-201, Type III, Rev. F. This product is also available in a shorter work life version - Epocast<sup>®</sup> 50-A1 Resin / Hardener 946 epoxy laminating system.

### Features

- High strength
- Flame retardant
- Long work life

### Typical Properties\*

Property	Test Method	50-A1 Resin	9816 Hardener	Mixed System
Appearance	Visual	Amber	Straw	Amber
Density, g/cm <sup>3</sup>	ASTM D792	1.21	1.05	1.18
Viscosity at 25°C, cP	ASTM D2196	7,770	250	2,400

\*Typical properties are based on Huntsman's test methods. Copies are available upon request.

### Processing Data

#### Mix Ratio

Product	Parts by weight
Epocast <sup>®</sup> 50-A1 Resin	100
Epocast <sup>®</sup> 9816 Hardener	14

Mix both components thoroughly for several minutes to insure complete and uniform blending. Mix only a quantity that can be applied within several minutes after mixing to avoid excessive exotherm. Material temperatures should be above 18°C (65°F) when mixing.

### Processing Data

Parameter	Value
Gel time, 100 g at 25°C	65 min
Typical Cure Cycle*	5 days at 25°C, or
	Gel at RT + 2 hours at 77-93°C

\*Handling and machining may be done after 8-16 hours at room temperature.

### Typical Physical Properties<sup>1</sup>

Unless otherwise stated, the data were determined with typical production batches using standard test methods. They are typical values only, and do not constitute a product specification.

Property		Cure Conditions	Test Temp	Value	Method
Compressive strength <sup>1</sup> , ksi (MPa)		7 days at 25°C	25°C	45.86 (316)	ASTM D695
		27 days at 25°C	25°C	49.00 (338)	
		25°C/1 day + 66°C/2h	25°C	46.24 (319)	
Compressive modulus <sup>1</sup> , ksi (MPa)		7 days at 25°C	25°C	3.52 (24.3)	ASTM D695
		27 days at 25°C	25°C	3.13 (21.6)	
		25°C/1 day + 66°C/2h	25°C	4.16 (28.7)	
Compressive strength, ksi (MPa)		25°C/3h + 93°C/2h	25°C	18.3 (126.1)	ASTM D695
			100°C	1.6 (11.0)	
Compressive modulus, ksi (GPa)		25°C/3h + 93°C/2h	25°C	781.6 (5.4)	ASTM D695
			100°C	17.4 (0.1)	
Lap Shear Strength, psi		24°C/24h + 80°C/2h	25°C	5,200	ASTM D1002
			25°C	5,690	
		25°C/3h + 121°C/30min	60°C	3,580	
			100°C	560	
			149°C	270	
Tensile	Strength, ksi Modulus, ksi Elongation, %	25°C/3h + 93°C/2h	25°C	11 486 3.7	ASTM D638
Flexural	Strength, ksi Modulus, ksi	25°C/3h + 93°C/2h	25°C	19 519	ASTM D790
Durometer Hardness, Shore D		25°C/3h + 93°C/2h	25°C	87	ASTM D2240
T- Peel, pli		25°C/24h + 80°C/2h	25°C	8.7	ASTM D1876
Tg (DMA), °C	E' onset	25°C/3h + 93°C/2h	--	68	Huntsman
	Tanδ peak			83	

### Typical Physical Properties - continued

Property		Cure Conditions	Test Temp	Value	Method
CTE (TMA), ppm/°C	$\alpha$ 1: -20°C to 20°C $\alpha$ 2: 75°C to 110°C	25°C/3h + 93°C/2h	--	68 187	Huntsman
Thermal Conductivity, W/mK		25°C/3h + 93°C/2h	--	0.260	Huntsman
Flammability, 12 second vertical	self-extinguishing time, sec. drip extinguishing time, sec. burn length, in (cm)	25°C/3h + 93°C/2h	--	0 0 0.38 (9.7)	FAR 25.853A
Flammability <sup>2</sup> , 60 second vertical	self-extinguishing time, sec. drip extinguishing time, sec. burn length, in (cm)	7 days at 25°C	--	0 0 <6 (<15)	FAR 25.853A
		25°C/1 day + 66°C/2h	--	0 0 <6 (<15)	FAR 25.853A

<sup>1</sup>Samples were 12-ply laminate using #1581 or 7781 glass.

<sup>2</sup>The combustible resin content of each laminate shall be verified to 28 to 33.6 percent by weight (the resin content can be verified using the burn out method typically employed for fiberglass reinforced materials). For flammability testing, two ply fiberglass fabric laminate shall be used with the warp direction the same for each ply.

### Storage

**Epocast<sup>®</sup> 50-A1 Resin / Hardener 9816** should be stored in a dry place, in the original sealed container at temperatures between 2°C and 40°C (35.6°F and 104°F). Tightly reseal containers after each use. Under these storage conditions, the product has a shelf-life of **1 year** from date of shipment (expiration date may differ based on customer specification). The product should not be exposed to direct sunlight.

### Precautionary Statement

Huntsman Advanced Materials Americas LLC maintains up-to-date Safety Data Sheets (SDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

#### First Aid!

Refer to SDS as mentioned above.

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