Epocast® 50-A1 Resin / Hardener 946

Product Description

Epocast® 50-A1 Resin / Hardener 946 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® 50-A1 Resin / Hardener 946 epoxy laminating system is flame retardant, and is qualified to BMS 8-201, Type IV, Rev. F. This product is also available in a longer work life version - Epocast® 50-A1 Resin / Hardener 9816 epoxy laminating system.

Features

- High strength
- Flame retardant
- Short work life

Typical Properties*

Property	Test Method	50-A1 Resin	946 Hardener	Mixed System
Appearance	Visual	Amber	Straw	Amber
Density, g/cm^3	ASTM D792	1.21	1.05	1.18
Viscosity at 25°C, cP	ASTM D2196	7,770	400	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® 50-A1 Resin	100
Epocast® 946 Hardener	15

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 any excessive exotherm. Material temperatures should be above 18°C (65°F) when mixing.

Processing Data

Parameter	Value
Gel time, 100 g at 77°F (25°C)	20 minutes
Typical cure cycles*	5 days at 25°C (77°F), 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[1]

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
[1]Compressive strength, ksi (MPa)		7 days at 77°F	77°F	46.03 (317)[1]	ASTM D695
		27 days at 77°F	77°F	50.58 (349)[1]	
		77°F/1 day + 150°F/2h	77°F	48.30 (333)[1]	
[1]Compressive modulus, Msi (GPa)		7 days at 77°F	77°F	4.04 (27.9)[1]	ASTM D695
		27 days at 77°F	77°F	3.43 (23.6)[1]	
		77°F/1 day + 150°F/2h	77°F	3.66 (25.2)[1]	
Compressive strength, ksi (MPa)		77°F/2h + 200°F/2h	77°F	15.6 (107.6)	ASTM D695
			212°F	1.3 (9.0)	
Compressive modulus, ksi (GPa)		77°F/2h + 200°F/2h	77°F	754.2 (5.2)	ASTM D695
			212°F	16.0 (0.11)	
Lap Shear Strength, psi (MPa)		77°F/ 7 days	77°F	4,970 (34.3)	ASTM D1002
		77°F/2h + 250°F/30min	77°F	5,400 (37.2)	
			140°F	3,200 (22.1)	
			212°F	370 (2.6)	
Tensile	Strength, ksi (MPa) Modulus, ksi (GPa) Elongation, %	77°F/2h + 200°F /2h	77°F	10.3 (71.0) 449.0 (3.1) 3.8	ASTM D638
Flexural	Strength, ksi (MPa) Modulus, ksi (GPa)	77°F/2h + 200°F /2h	77°F	17.7 (122.0) 479.9 (3.3)	ASTM D790
Hardness		77°F/2h + 200°F /2h	77°F	88D	ASTM D2240
Tg (DMA 5°C/min), °C	E' onset Tanδ peak	77°F/2h + 200°F /2h	--	75 90	Huntsman
[2]Tg (DSC 5°C/min), °C		77°F/1h + 176°F/2h		70	Huntsman

Property		Cure Conditions	Test Temp	Value	Method
CTE (TMA), ppm/°C	α1 – below transition α2 – above transition	77°F/2h + 200°F /2h	--	72 178	Huntsman
Thermal Conductivity, W/mK		77°F/3h + 200°F /2h	--	0.258	Huntsman
[3]Flammability, 60 second vertical	self-extinguishing time, sec. drip extinguishing time, sec. burn length, in (cm)	77°F/ 7 days		0 0 <6 (<15)	FAR 25.853A
[3]Flammability, 60 second vertical	self-extinguishing time, sec. drip extinguishing time, sec. burn length, in (cm)	77°F/1 day + 150°F/2h		0 0 <6 (<15)	FAR 25.853A

[1]Samples were 12-ply laminate using #1581 or 7781 glass (otherwise they were neat resin samples).
[2]Sample can also be cured for 1 hour at 77°F + 2 hours at 212°F
[3]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® 50-A1 Resin / **Hardener 946** 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.

KEEP OUT OF REACH OF CHILDREN

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