

Epocast[®] 1614-A2 Epoxy Structural Syntactic

Product Description

Epocast[®] 1614-A2 epoxy structural syntactic is a flame retardant, low-density, frozen, one-component material used to reinforce honeycomb composite parts requiring high compressive strength at elevated temperatures up to 350°F (177°C). This material meets the requirements of BMS 5-28, Type 14, Classes 1 and 2, NTR-MS 1301A, and other specifications. Epocast[®] 1614-A2 epoxy structural syntactic does not contain any SVHC (substance of very high concern) as defined under REACH.

Applications

Epocast[®] 1614-A2 epoxy syntactic is suitable for aerospace applications, which require high strength and low density, in the areas of honeycomb core reinforcement for structural bonding and joining, fastener or attachment potting and panel edge reinforcing, etc.

Features

- Pre-mixed and frozen
- 18 month shelf life
- Long working life
- High compressive strength at ambient and elevated temperatures
- Excellent hot/wet performance
- Low density
- Flame retardant
- Low coefficient of thermal expansion
- No SVHC as defined under REACH

Typical Properties as Supplied

Property	Test Method	Value
Appearance	Visual	Reddish brown paste
Density, g/cm ³ (lb/ft ³)	ASTM D1875	< 0.75 (46.8)
Viscosity at 77°F (25°C), cP	ASTM D2196	Paste
Extrusion rate at 77°F (25°C) after 8 hours, g/min	OEM	> 700
Sag resistance, inch (mm)	OEM	≤ 0.3 (7.6)

Processing

Epocast[®] 1614-A2 must be thawed and allowed to reach ambient temperature (70°F - 80°F) before use. At ambient temperature, cartridges will be typically thaw in 2 to 4 hours, whereas patties may require 3 to 4 hours. If required the thawing may be accelerated by placing the frozen cartridge or patty for one hour in an oven set at 125°F (50°C). It is recommended that Epocast[®] 1614-A2 be used in a dry environment (< 60% RH) as moisture may have negative impact on its cure and performance. Do not open the cap of cartridge and keep patty tightly wrapped with plastic film to prevent moisture contamination from condensation. DO NOT IMMERSE PATTY IN WATER.

Cure cycle

Heat the material from room temperature at the rate of 5 - 7°F (3 - 4°C) per minute, plus 1 hour at 350°F (177°C) or 90 minutes at 250°F (121°C). Cure temperature refers to temperature of material as determined by thermocouple. A slow heating rate of 2 - 4°F (1 - 2°C) per minute is preferred to reduce shrinkage and minimize out-gassing during cure.

Typical Physical Properties After Cure

(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		Test Method	Value
Density, g/cm ³ (lb/ft ³)		ASTM D1622	0.68 - 0.75 (42.5 - 46.8)
Compressive strength, Ksi (MPa)	at 73°F (23°C)	ASTM D695	13 - 18 (89.6 - 124.1)
	at 350°F (177°C)		7.0 - 9.5 (48.2 - 65.5)
	at 400°F (204°C) ¹		5.5 - 6.5 (37.9 - 44.8)
	at 450°F (232°C) ¹		4.0 - 5.0 (27.6 - 34.5)
	at 73°F (23°C) after hot/wet exposure ²		11 - 13 (75.8 - 89.6)
	at 265°F (129°C) after hot/wet exposure ²		6.5 - 7.5 (44.8 - 51.7)
Tensile lap shear strength, Al/Al, at 73°F (23°C), Ksi (MPa)		ASTM D1002	1.7 - 2.0 (11.7 - 13.8)
Self-extinguishing time, seconds	15-second horizontal burn	FAR 25.853	< 5
	12-second vertical burn		< 15
Tg, TMA, °F (°C)	cured 1 hour at 350°F (177 °C)	ASTM E1824	375 (190)
Tg, DMA, °F (°C)	cured 1 hour at 350°F (177 °C)	ASTM D4065	396 (202)
CTE, below Tg, μm/m·C	cured 1 hour at 350°F (177°C)	ASTM E831	32

¹Does not represent a service temperature. The product can only withstand this temperature for a brief period of time.

²45 days at 160°F / 85% RH per ASTM D5229

Storage

When stored in a dry place in its original sealed container at a temperature of 0°F (-18°C) or lower, Epocast® 1614-A2 epoxy structural syntactic has an 18 months shelf-life from date of shipment (supplied under Huntsman standard certification. Actual expiration date may differ based on customer specification). Uncured 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

FOR PROFESSIONAL AND INDUSTRIAL USE ONLY

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