

> FM[®] 490A CORE SPLICE ADHESIVE

TECHNICAL DATA SHEET



DESCRIPTION

FM[®] 490A core splice adhesive is a modified epoxy material supplied in sheet form that may be cured in place by either free foaming or restrained foaming processes. It may be processed at any temperature ranging from 225°F to 350°F (107°C to 177°C). It is specifically designed to minimize variation in cell structure induced by typical process variables such as heat-up rates and vacuum conditions. Typical applications include bonding of inserts or edge members to core and localized reinforcement of honeycomb core where increased shear strength is required. Because FM 490A core splice adhesive contains no metallic fillers it is appropriate for applications requiring radar transparency.

FEATURES & BENEFITS

- Use temperature ranging from -67°F to 350°F (-55°C to 177°C)
- Wide curing window: 225°F to 350°F (107°C to 177°C)
- Uniform cell structure: ambient to 10 inches of mercury vacuum
- Achieves uniform expansion independent of heat-up rate 1°F to 10°F/minute (0.6°C to 5.6°C/minute)
- Non-asbestos, no metallic fillers
- Radar transparent

SUGGESTED APPLICATIONS

- Honeycomb splicing
- Localized reinforcement
- Bonding of edge members and inserts

> FM[®] 490A CORE SPLICE ADHESIVE

TECHNICAL DATA SHEET

CHARACTERISTICS

The material is supplied in unsupported, 1 ft. x 2 ft. (30.5 x 61 cm) sheets and is protected by a release paper that is stripped easily.

Table 1 | Product Description

Thickness	0.025 ± 0.005 inch (0.64 ± 0.13 mm) 0.050 ± 0.005 inch (1.27 ± 0.13 mm) 0.100 ± 0.005 inch (2.54 ± 0.13 mm)
Color	Tan
Volatile	Less than 1%
Penetration	0.075 in (1.9 mm) at 72°F (22°C)
Expansion	1.5 – 3.5 times the initial thickness
Density	20 – 40 lb/ft ³ (320 – 641 kg/m ³)
Shop Life	10 days at 90°F (32°C)
Shelf Life	12 months from date of shipment at recommended storage temperature
Recommended Storage	Store at or below 0°F (-18°C)

PROPERTIES

Table 2 | Typical Mechanical Properties

Property	Test Condition	Average Result	
		250°F (121°C) Cure	350°F (177°C) Cure
Tube Shear, psi (MPa)	Tested at -67°F (-55°C)	1270 (8.76)	1330 (9.20)
	Tested at 75°F (24°C)	1500 (10.35)	1390 (9.60)
	Tested at 180°F (82°C)	1270 (8.77)	1260 (8.70)
	Tested at 250°F (121°C)	665 (4.58)	1027 (7.08)
	Tested at 350°F (177°C)	-	170 (1.16)
	Tested at 75°F (24°) after 15 minute trichloroethylene degreasing and 30 minute post bake at 250°F (121°C)	1360 (9.38)	1375 (9.48)
	Tested at 75°F (24°) after 3 days water boil	1315 (9.07)	1270 (8.77)
	Tested at 75°F (24°) after 7 days immersion in Skydrol at 150°F (66°C)	1530 (10.57)	1390 (9.59)
	Tested at 75°F (24°) after 30 days salt spray at 95°F (35°C)	1520 (10.98)	1495 (10.32)

> FM[®] 490A CORE SPLICE ADHESIVE

TECHNICAL DATA SHEET

Table 3 | Average Physical Properties

Property	Test Condition	Average Result	
		250°F (121°C) Cure	350°F (177°C) Cure
Expansion	At 1°F/min (0.6°C)/min	1.77	1.80
	At 3°F/min (1.8°C)/min	1.99	2.13
	At 5°F/min (2.8°C)/min	2.06	2.42
	At 10°F/min (5.5°C)/min	2.09	2.96
Exotherm	At 10°F/min (5.5°C)/min	390°F (199°C)	496°F (258°C)
Slump	At 5°F/min (2.8°C)/min	0.062 in (1.56 mm)	0.073 in (1.85 mm)

APPLICATION NOTES

FM 490A core splice adhesive may be cured using the following cure cycles:

- 1 – 10°F (0.6 – 5.5–°C) per minute ramp to 250 – 350°F (121 – 177°C)
- 60 minutes at 250 – 350°F (121 – 177°C)

PRODUCT HANDLING AND SAFETY

Cytec Engineered Materials recommends wearing clean, impervious gloves when working with epoxy resin systems to reduce skin contact and to avoid contamination of the product.

Materials Safety Data Sheets (MSDS) and product labels are available upon request and can be obtained from any Cytec Engineered Materials Office.

DISPOSAL OF SCRAP MATERIAL

Disposal of scrap material should be in accordance with local, state, and federal regulations.

> FM[®] 490A CORE SPLICE ADHESIVE

TECHNICAL DATA SHEET

CONTACT INFORMATION

GLOBAL HEADQUARTERS

Tempe, Arizona
tel 480.730.2000
fax 480.730.2088

NORTH AMERICA

Olean, New York
tel 716.372.9650
fax 716.372.1594

Winona, Minnesota
tel 507.454.3611
fax 507.452.8195

Greenville, Texas
tel 903.457.8500
fax 903.457.8598

Springfield, Massachusetts
tel 1.800.253.4078
fax 716.372.1594

Anaheim, California
tel 714.630.9400
fax 714.666.4345

Cytec Carbon Fibers LLC
Piedmont, South Carolina
tel 864.277.5720
fax 864.299.9373

Havre de Grace, Maryland
tel 410.939.1910
fax 410.939.8100

Orange, California
tel 714.639.2050
fax 714.532.4096

D Aircraft Products, Inc.
Anaheim, California
tel 714.632.8444
fax 714.632.7164

EUROPE AND ASIA

Wrexham, United Kingdom
tel +44.1978.665200
fax +44.1978.665222

Östringen, Germany
tel +49.7253.934111
fax +49.7253.934102

Shanghai, China
tel +86.21.5746.8018
fax +86.21.5746.8038

DISCLAIMER: The data and information provided in this document have been obtained from carefully controlled samples and are considered to be representative of the product described. Cytec Engineered Materials (CEM) does not express or imply any guarantee or warranty of any kind including, but not limited to, the accuracy, the completeness or the relevance of the data and information set out herein. Because the properties of this product can be significantly affected by the fabrication and testing techniques employed, and since CEM does not control the conditions under which its products are tested and used, CEM cannot guarantee that the properties provided will be obtained with other processes and equipment. No guarantee or warranty is provided that the product is adapted for a specific use or purpose and CEM declines any liability with respect to the use made by any third party of the data and information contained herein. CEM has the right to change any data or information when deemed appropriate.

All trademarks are the property of their respective owners.