NB51-301

NEWPORT HIGH PERFORMANCE MATERIALS

MITSUBISHI RAYON CARBON FIBER & COMPOSITES

250-300°F (121-149°C) Cure Expanding Syntactic Epoxy Film Adhesive

Typical applications
Aerospace
Sporting goods
Marine
Wind energy
Industrial manufacturing

Out life
30 days at 70°F (21°C)

Shelf life
6 months at 40°F (4°C)
12 months at 0°F (-18°C)

Description
NB51-301 is a 250-300°F (121-149°C) cure, expanding syntactic epoxy film adhesive. This adhesive is specifically designed as a core splice material, for strengthening the splice area where core joints meet. It is also suitable for inserts and edge member attachments as well as filling available space where bladder molding is difficult.

Benefits/features
- Expansion ratio between 2:1 and 3:1
- Does not slump during cure (meets ASTM E-990)
- Uniform expansion and cell size for superior strength
- Humidity and chemically resistant
- Low exotherm
- Co-curable with most 250°F (121°C) epoxy systems

Application
NB51-301 is suited for secondary bonding applications in aerospace, sporting goods, marine, wind energy, and industrial manufacturing. High shear strengths make NB51-301 ideal for core splicing applications and other areas where expansion is needed to provide molding pressure.

NB51-301 is supplied in standard film weights from 0.25-0.5 psf (0.05-0.10" thick), and is supplied as an unsupported adhesive. The product is supplied in standard 24"x36" sheets (other sizes are available upon request). Contact MRCFAC about any special requirements (color, size, thickness). Standard colors are natural, black, aqua, and blue.

Recommended processing conditions
NB51-301 is typically cured at 250°F to 300°F (121°C - 149°C) depending on part size and complexity. Low, medium and high pressure molding techniques may be used depending on the desired level of expansion. Recommended cure cycle is 25 psi (172.5 kPa); 4-8°F/min (2.2-4.4°C/min) ramp to 250°F (121°C), hold for 60-90 minutes, cool to <140°F (60°C).

Technical Data Sheet

Neat resin [values are average and do not constitute a specification]

Property		Value
Gel time @ 275°F (135°C), minutes		5-9
Specific gravity	Uncured	1.21

Mechanical data [values are average and do not constitute a specification]

NB 51/301, oven cured, at 250°F for 60 min., results as tested

Property	Test method	Test condition	Result
Tube shear strength, psi (MPa)		RT	930 (6.4)
Tube shear strength, psi (MPa)		180°F (82°C)	840 (5.8)
Tube shear strength, psi (MPa)	ASTM E990	250°F (121°C)	490 (3.4)
Tube shear strength after 3-day water boil, psi (MPa)		RT	980 (6.7)
Tube shear strength after 7-day Skydrol soak, psi (MPa)		150°F (65°C)	1700 (11.7)
Beam shear strength, psi (MPa)	RMS 025	RT	730 (5.0)
Water migration, mL	ASTM E990	RT	<2

MITSUBISHI RAYON
CARBON FIBER & COMPOSITES

Technical Data Sheet

CORPORATE OFFICE
Composite Materials Div.
1822 Reynolds Ave.
Irvine, CA 92614

Tel: (949) 253-5680
Fax: (949) 253-5692
http://www.mrcfac.com
compositesales@mrcfac.com

THE KAITEKI COMPANY
Mitsubishi Chemical Holdings Group