



EF44 ADHESIVE FILM

A Modified Epoxy Structural Film Adhesive for General Fabricating

EF44 is a high strength low temperature cure epoxy adhesive formulation supplied in the form of a thin film for general adhesive applications. The film is protected on one side by a release paper and on the other by a polythene separator. A lightweight cotton scrim is incorporated into the adhesive film to ensure easy handling whilst cutting and positioning.

CHARACTERISTICS:

- Low cost
- Accurate control of adhesive distribution, reduced wastage
- Clean and easy to apply
- Low initial cure temperatures
- Excellent filleting to honeycomb, ideal for honeycomb sandwich construction
- Suitable for autoclave and vac bag cure
- No solvents, low volatile content
- 14 days work life at ambient
- 6 months storage life at -18°C (0°F)

RESIN PROPERTIES

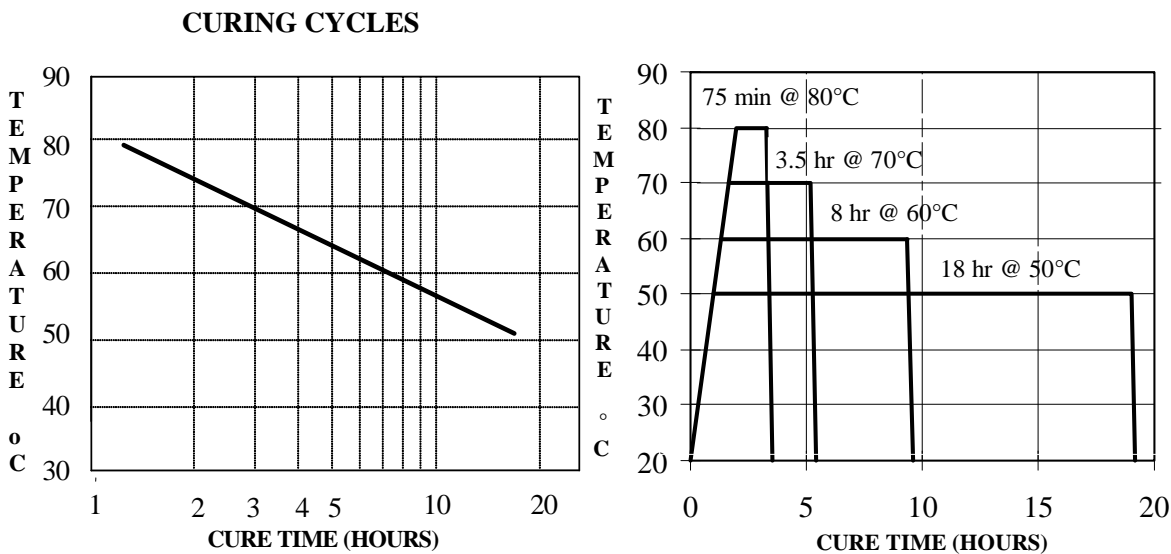
Density	1.20 g/cc at 23°C (70°F)
Tg	126°C(258°F) DSC with recommended postcure



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CURING CYCLES



Increase air temperature at 0.50°C (0.90°F) /min to the required curing temperature and cure for the stated minimum time.

<u>Initial Cures</u>	50°C (122°F) – 18 hours minimum
	60°C (140°F) – 8 hours minimum
	70°C (158°F) – 1.5 hours minimum
	80°C (176°F) – 75 minutes minimum

The 3.5 hr/70°C cure produces a material with optimised adhesive properties whilst the alternative cures may affect the performance to some extent. The user must perform his own evaluation tests to see whether the alternative cure temperatures are acceptable for that application.

- Postcure
- 1) To achieve maximum solvent resistance a suitable postcure must be carried out. E.g. Ramp from initial cure temperature to 120°C (248°F) at 0.3°C (0.54°F)/min and hold for 1 hour. Cool to 50°C (122°F) at 2.5°C (4.5°F)/min.
 - 2) To achieve the maximum Tg it is essential that a suitable postcure is carried out. E.g. for Tg 126°C (258°F), ramp from initial cure temperature to 140°C (284°F) at 0.30°C (0.54°F)/min and hold for 4 hours minimum. Cool to 50°C (122°F) at 2.5C(4.5°F)/min.



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ADHESIVE PROPERTIES (at Room Temperature)

Climbing drum peel strength at 22°C (72°F) according to DTD 5577 using 1 ply of EF44 resin film and 2 plies of Amber E644 prepreg on Aluminum honeycomb 5.2-¹/₄-25-3003.

200 g/m² T300 type carbon 2/2 twill 50% R.W.

Surface	Peel Strength (N/75mm)
Top	260
Bottom	276
Mean	268

280 g/m² T300 type carbon 4/4 twill 45% R.W.

Surface	Peel Strength (N/75mm)
Top	347
Bottom	378
Mean	363

Moulding conditions for the honeycomb panels were as follows:

Ramped at 0.5°C (32°F)/min from 30°C (86°F) to 70°C (158°F).

Held at 70°C (158°F) for 3.5hrs.

25 P.S.I. pressure applied.

STANDARD ROLL QUANTITIES

Resin Film Weight Incl. Cotton Scrim. (g/m ²)	Roll Length (linear m)	Width (m)
220	20.5	1.22

Other roll lengths are available on request.

The film is supplied on rolls with a cotton scrim carrier, a release paper on one side and a polythene separator film on the other.



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CAUTION

EF44 resin film contains a reactive resin system and care must be taken to avoid exothermic heating during the initial cure.

STORAGE

Shelf life is at least 14 days at ambient temperature 20°C (68°F)

Refrigerated storage life is 6 months at -18°C (0°F)

Following removal from refrigerator storage, allow resin film to reach room temperature before opening polythene bag, to avoid moisture condensation.

HANDLING SAFETY

Observe established precautions for handling epoxy resins and fibrous materials.

For further information refer to Material Safety Data Sheet.

FURTHER INFORMATION

Please contact Amber Composites for additional information.

This is not a specification. The information given in this data sheet in relation to the performance, storage and other characteristics of the product is based on results gained from experience and tests and is believed to be accurate. Given, however, that conditions of use and storage will vary, Amber Composites will not be liable for any loss or damage resulting from reliance upon such information. The purchaser is recommended to carry out his own tests to establish the suitability of the product for its particular purpose. The use of the product in certain processes may require third party consent.