

## PRODUCT DATA SHEET

### DESCRIPTION

Toray MicroPly™ ES72A-2 is a 125°C (257°F) curing low-density, expanding, unsupported, epoxy syntactic core. ES72A-2 offers reduced processing, a one-shot cure, the ability to anchor inserts or fastenings, and increases the opportunity to consider lightweight, thin-walled composite sandwich structures. ES72A-2 can be easily contoured and shaped.

Toray MicroPly™ ES72A-2 expands using a closed cell process ensuring complete homogeneous cell structure, the density/strength may be altered simply by changing cure pressure or limiting the volume available for expansion, the material is capable of expanding up to 650%.

Toray MicroPly™ ES72A-2, formerly Amspand, is available in a variety of thicknesses down to 1 mm, and is supplied in sheets (625 mm x 400 mm).

### FEATURES

- ▶ Density/strength may be tailored by simply changing cure pressure or limiting volume available for expansion
  - ▶ Capable of expanding up to 650%\*\*
  - ▶ Forms a closed cell structure
  - ▶ Capable of generating internal pressure during cure
  - ▶ Compatible for co-cure with Toray's E720 and E722 prepreg
  - ▶ 30 days out life at ambient temperature
- \*\* Variations in heat-up rate, cure temperature, pressure and thickness are all factors that influence the expansion (e.g., at 1-mm thickness an expansion of 250% can be achieved. Increasing the thickness will increase the expansion).

### PRODUCT TYPE

125°C (257°F) Cure

Expanding Syntactic Core

### TYPICAL APPLICATIONS

- ▶ Honeycomb edge filling and splicing
- ▶ Honeycomb core stabilization
- ▶ Use as a filling core in closed mold operations

### SHELF LIFE

**Out Life:** 30 days at 20°C (68°F)

**Storage Life:** 12 months at -18°C (0°F) when stored in polythene bags

Out life is the maximum time allowed at room temperature before cure.

### TYPICAL UNCURED PROPERTIES

Thickness	1, 1.5, and 2 mm ± 10% as standard
Color	Charcoal gray
Tack	Medium
Flexibility	Pliable at room temperature
Surface weight	900 g/m <sup>2</sup> nom. for 1 mm thickness 1350 g/m <sup>2</sup> nom. for 1.5 mm thickness 1800 g/m <sup>2</sup> nom. for 2 mm thickness
Density	0.90 g/cm <sup>3</sup> nominal

### TYPICAL CURED PROPERTIES

T <sub>g</sub> (by DSC)	114°C (237°F)
Density	Fully expanded 0.10 to 0.40 g/cm <sup>3</sup> (variations in heat-up rate, cure temperature, pressure, and expansion are all factors)



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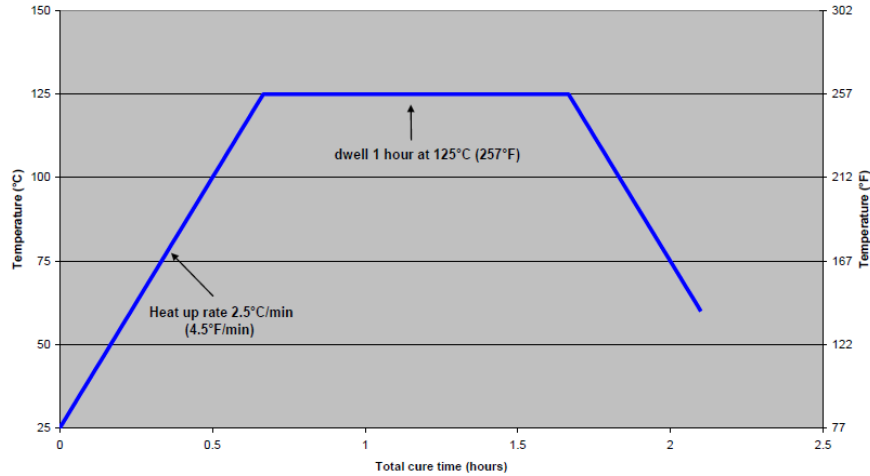
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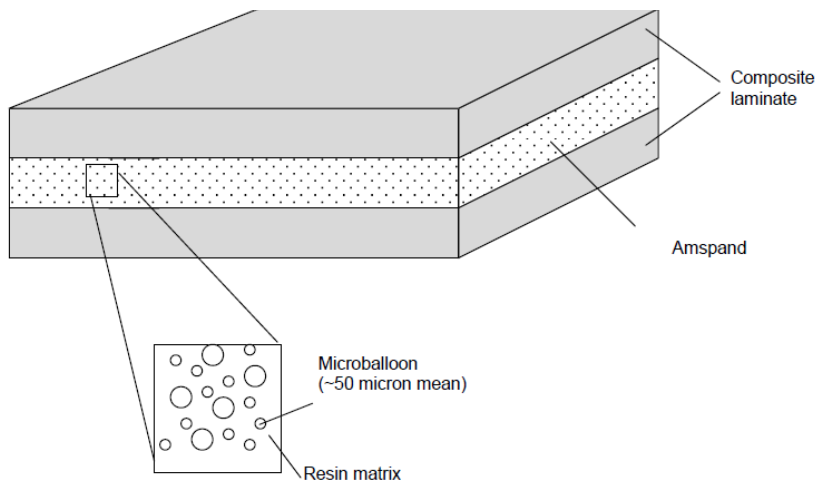
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### INITIAL MINIMUM CURE SCHEDULE



### CURING CYCLE

- ▶ Increase air temperature at 2.5°C (4.5°F)/min to 125°C (257°F) and hold for 1 hour
- ▶ Allow to cool to 60°C (140°F) prior to releasing vacuum and removal from mold



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### APPLICATION

Remove from cold storage and allow to reach room temperature before removing from polythene bag. Trim to required shape and remove release paper from one side. Place in position and remove remaining release paper.

**Caution:** ES72A-2 syntactic core contains a reactive resin system and care must be taken to avoid exothermic heating during the cure.

### HANDLING SAFETY

This product may cause skin irritation. Avoid skin contact. If contact occurs, wash with soap and water at the first opportunity.

For further information, refer to the Safety Data Sheet.

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