E6-216

Low temperature curing epoxy tooling prepregs
High service temperature

TECHNICAL DATA SHEET

E6-216 tooling package is a series of epoxy tooling systems designed for versatile low temperature cure with processing temperature ranging from 40°C to 60°C.

It is a cost-effective tooling system with good handleability. It can produce high quality tooling laminates via either autoclave or vacuum bag only processing for the initial cure, followed by a free-standing post cure.

The prepregs have 5-6 days outlife at ambient temperature.

E6-216 prepregs are available in various light weight and heavy weight fabrics for efficient tooling manufacturing.

E6-216 tooling package is optimised for manufacturing tooling to mould high temperature cure composite components. It has good retention of mechanical properties up to 200°C when fully post cured.

With specific processing conditions, E6-216 tooling package can work with treated polyurethane tooling blocks to provide good surface finish tooling.##

PRODUCT VARIANTS

E6-216 HM: hot-melt version

E6-216: solvent version

FEATURES

- INITIAL LOW TEMPERATURE CURE FROM 40°C TO 60 °C
- FREE-STANDING POST CURE CYCLE
- LOW VOLATILE CONTENT OF <1%

TYPICAL APPLICATIONS

MOTORSPORT AUTOMOTIVE AEROSPACE

SHELF LIFE

OUT LIFE #
5/6 days @ 21°C

STORAGE LIFE
6 months @ -18 °C

Out life is the maximum time allowed before cure after a single frozen storage cycle in the original prepreg bag unopened stored at -18°C or below for a period not exceeding the above mentioned frozen storage life.

Please consult Microtex Composites technical service for further details.

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Quality system certified
ISO 9001:2015
by TUV Italia s.r.l.
cert. no. 50 100 12429

Quality system certified
IATF 16949:16
by TUV SUD Management Service GmbH
cert. no. 0447526

Quality system certified
EN 9100:18
By TUV Italia s.r.l.
cert. no. 50 100 17721

MATRIX PROPERTIES

Cured resin density @ RT: (average value) 1.21 g/cm^3.

Gel time: ~ 800 sec @ 100°C

Recommended cure cycles

Cure cycle:

a. Apply full vacuum (min -0.85bar);

b. Increase autoclave pressure to 6bar;

c. Heat to 55°C ± 3°C at between 0.3°C /min and 0.55°C /min;

d. Hold for 960 minutes.

e. Cool to 60°C at between 1°C /min and 5°C /min;

f. Release pressure.

Post cure cycle:
A slow controlled temperature ramp rate, not exceeding 0.33°C/min (20°C/Hour) is essential to develop the resin Tg. The slow postcure also ensures the tool retains the correct profile and dimensions.

a. Heat to 180°C ± 3°C at a ramp rate no more than 0.33 °C/min;

b. Hold for 240 minutes.

c. Cool to 60°C at between 1°C /min and 5°C /min.

Above is the suggested standard cure cycle. For advice on dwell cure cycles for very thick laminates, please consult Microtex Composites technical service.

Temperature must be measured by the lagging thermocouple attached to the part; Vacuum bag pressure: 0.9 bar.

CURE CYCLES AND Tg's

Cure cycles	Tg (DMA) Onset (°C)	Tg (DMA) tanδ (°C)
40 h @ 45 °C	77	98
24 h @ 50 °C	79	101
16 h @ 55 °C	81	102
40 h @ 45 °C + 4 h @ 180 °C	188	217
24 h @ 50 °C + 4 h @ 180 °C	187	216
16 h @ 55 °C + 4 h @ 180 °C	192	216

MECHANICAL PROPERTIES AFTER POST CURE

Property	Test Method	Values
Interlaminar shear strength (ILSS) [MPa]	ASTM D2344	53

STORAGE CONDITIONS

This prepreg should be stored as received in a cool dry place or in a refrigerator.
After removal from refrigerated storage, prepreg should be allowed to reach room temperature before opening the polyethylene bag, thus preventing condensation.

PRECAUTIONS FOR USE

The usual precautions when handling uncured resins and fibrous materials should be observed, and a Safety Data Sheet is available for this product.

SDS Reference Code: E6-216: SIS-487

Carbon fabric 200gsm twill 2/2 E6 216HM

Carbon fabric 200gsm twill 2/2 E6 216HM and 600gsm twill 2/2 12K E6 216HM

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