R3-300

Fast Cure Flame Retardant Epoxy Resin Matrix Prepregs

TECHNICAL DATA SHEET

R3-300 is a thermosetting epoxy prepreg resin system designed specifically for the production of composite components having low heat release and fire smoke toxicity properties.

R3-300 prepreg materials have good tack and handleability.

R3-300 has controlled flow and can be used to produce sandwich structures and laminates via a variety of processing methods including press cure, autoclave cure and oven vacuum bag cure, performs particularly well in press cure.

R3-300 prepreg materials are intended for manufacturing composite parts in aerospace applications requiring fire protection to meet FAR 25.853 Appendix 'F' part I, IV and V.

R3-300 provides a DMA Tg onset of over 160°C after a suitable cure cycle. It also offers good mechanical performance including self adhesion properties.

R3-300 are available with a wide variety of reinforcements.

PRODUCT VARIANTS

R3 300: Hotmelt version

SHELF LIFE

OUT LIFE
4 weeks @ 21 °C

STORAGE LIFE
12 months @ -18 °C

TYPICAL APPLICATIONS

AEROSPACE

AUTOMOTIVE

INDUSTRIAL

FEATURES

- GOOD TACK AND HANDLEABILITY
- PRESS MOULDING
- FAST CURING PRESS MOULDING IN 5-15MIN
- GREAT Tg DEVELOPMENT
- MEET FAR 25.853, APP. F, PART I, IV, V
- GOOD SELF ADHESION PROPERTIES

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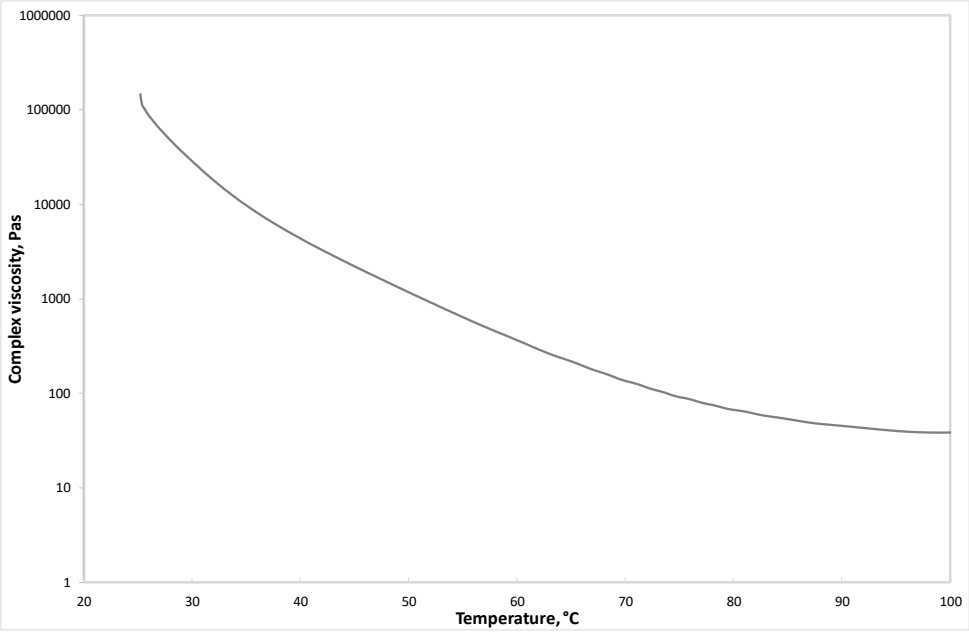
Quality system certified
ISO 9001:2015
by TUV Italia s.r.l.
cert. no. 50 100 12429

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

MATRIX PROPERTIES

Cured resin density @ RT: (average value) 1.51 g/cm^3.

Resin viscosity: ramp rate = 2 °C/min, v = 10 rad/sec.



Recommended autoclave cure cycle

1. Apply full vacuum (min -0.85bar);
2. Apply autoclave pressure to 6 bar gradually;
3. Heat to 130°C ± 3°C at between 1°C /min and 2°C /min;
4. Hold for 30 minutes;
5. Cool to 30°C at between 1°C /min and 5°C /min;
6. Release pressure.

Above is the suggested standard cure cycle. For advice on bespoke cure cycles for specific components, please consult Microtex Composites technical service.

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Recommended Press cure cycle

1. Pre-set press pressure to 10-20 bar ;
2. Pre-heat the press to 140°C ± 3°C;
3. Insert the assembly to the mould and hold for 10 minutes;
4. Release pressure;
5. Demould.

Above is the suggested standard cure cycle. For advice on bespoke cure cycles for specific components, please consult Microtex Composites technical service.

THERMAL PROPERTIES

R3-300/VV296 #

Processing methods	Cure cycle	DMA Tg onset (°C)
Autoclave	30 min @ 130°C	163
Press Cure	10 min @ 145°C	160

FST PERFORMANCE

The following table summarises FST performance of laminates made of 8-ply R3-300 with VV296 42% RC, autoclave cured 30mins @ 130°C and 6 bar.

Test	Standard	Result
Maximum heat release rate, kW/m² [1]	CS/FAR 25.853 (d) App. F, Part IV	43
Heat release over the first 2 min, kW min/m² [2]		38
Max optical density [3]	CS/FAR 25.853 (d) App. F, Part V	115
Vertical burning	CS 25.853(a) Appendix 'F' part I, Para. (a)(1)(i)	PASS
Smoke Toxicity	AITM 3.0005	PASS

[1] Maximum Heat Release Rate expanded uncertainty with a coverage factor of K=2 (95% of level of confidence), is ±0,9 kW/m2.

[2] Total Heat Release during first 2 min expanded uncertainty with a coverage factor of K=2 (95% of level of confidence), is ±0,8 kW min/m2.

[3] Smoke optical density expanded uncertainty with a coverage factor of K=2 (95% of level of confidence) is ±7,5.

Glass fabric 296 gsm 8HS, RC 42%.

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MECHANICAL PROPERTIES

R3-300 - 30 min @ 130 °C, 6 bar		VV296-42#
Property	**Test Method**	**Value***
0° Tensile strength [MPa]	ASTM D3039	549
0° Tensile modulus [GPa]		36
0° Compressive strength [MPa]	SACMA SRM 1R-94	579
0° ILSS [MPa]	ASTM D2344	73
0° Flexural strength [MPa]	ASTM D790	781
0° Flexural modulus [GPa]		30

* Test conditions: room temperature, dry . Normalized values at 55% VF.

AVAILABILITY

R3-300 series prepregs are available in a wide range of reinforcing fabrics, including carbon, aramid, glass and special fabrics.

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 (a full roll in its packaging can take more than 1 day).

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 Codes: R3-300: SDS-473

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