MICROTEX COMPOSITES

E9-150

General Purpose Epoxy Prepregs

TECHNICAL DATA SHEET

E9-150 SERIES is a thermosetting epoxy matrix family with process temperatures ranging from 80°C to 140°C; the system is designed for general applications[1] and is available in several product variants.
The viscosity of the system offers flexible processing and a range of handling characteristics.
E9 matrix exhibit good mechanical properties and, properly postcured, can be used at continuous operating temperatures up to 90°C. Higher not continuous operating temperatures can be supported.

PRODUCT VARIANTS

E9-150: Unpigmented

E9-150N: Light black pigmented

E9-150N2: Heavy black pigmented

E9-052: Light white pigmented

SHELF LIFE

OUT LIFE
> 30 days @ 21 °C

STORAGE LIFE
12 months @ -18 °C

TYPICAL APPLICATIONS

AUTOMOTIVE

INDUSTRIAL

GENERAL PURPOSE

FEATURES

GENERAL STRUCTURAL APPLICATIONS

GOOD MECHANICAL PERFORMANCES

1 The system is not designed for cosmetic application, if this application is needed please contact our Technical Department .

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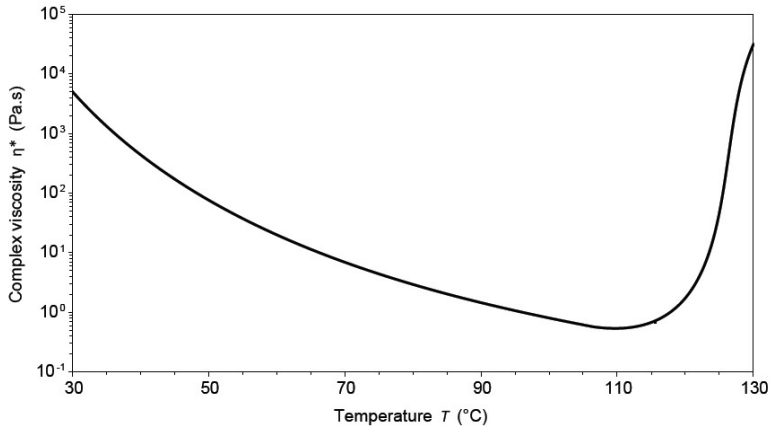
Quality system certified
ISO 9001:2015
by TUV Italia s.r.l.
cert. no. 50 100 12429

Quality system certified
IATF 16949:16
by TUV SUD Management Service GmbH
cert. no. 0365935

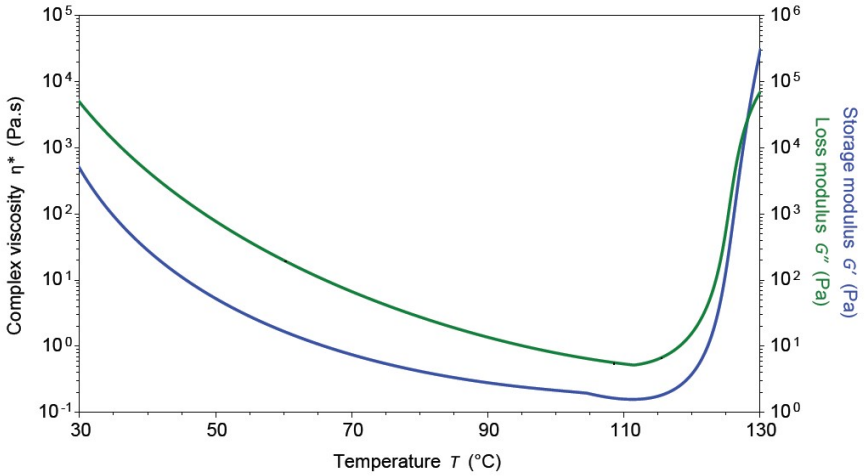
MATRIX PROPERTIES

Cured resin density @ RT: (average value) 1.20-1.25 g/cm^3.

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



Gel Time: ramp rate = 2 °C/min, ν = 10 rad/sec.



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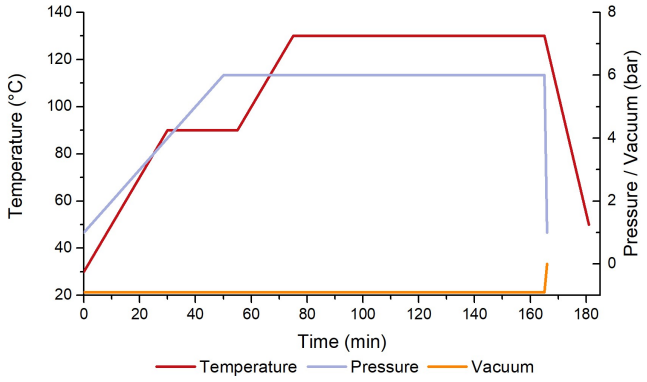
CURING CONDITIONS

Recommended Autoclave Cure [2,3]			
Time (min)	**Temp. (°C)**	**Time (min)**	**Pressure (bar)[4]**
0	30	0	1
30	90	10	2
55	90	30	4
75	130	50	6
165	130	165	6
181	60	166	1



ALTERNATIVE CURING CYCLES AND Tg's

E9-150			
Cure cycle	**Tg (DSC) (°C)**	**Tg (DMA) Onset (°C)**	**Tg (DMA) tanδ (°C)**
8 h @ 80°C	85 ÷ 90	-	-
1 h @ 130°C	125 ÷ 130	115	136
Max Wet Tg [7]	-	96	113

2 Temperature must be measured by the lagging thermocouple attached to the part.
3 Vacuum bag pressure: 0.9 bar.
4 On a sandwich production, adjust the pressure on core specifications to avoid buckling and/or distortion.
7 Wet conditioning: 14 days immersion in water @ 70 °C.

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MECHANICAL PROPERTIES

E9-150 - 60 min @ 130 °C, 6 bar		GG630T-37[8]
Property	**Test Method**	**Value***
0° Tensile strength [MPa]	ASTM D3039	737
0° Tensile modulus [GPa]		69
90° Tensile strength [MPa]		677
90° Tensile modulus [GPa]		71
In plane shear strength (IPSS) [MPa]	ASTM D3518	100
In plane shear modulus (IPSM) [GPa]		12.5
0° Interlaminar shear strength (ILSS) [MPa]	ASTM D2344	67
Mode I strain energy release rate G1c [J/m^2]	ASTM D5528 (MBT METHOD)	800-870

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

E9-150 - 90 min @ 130 °C, 6 bar		VV770T-32[9]
Property	**Test Method**	**Values***
0° Tensile strength [MPa]	EN ISO 527	450
0° Tensile modulus [GPa]		23
0° Tensile Poisson ratio		0.13
90° Tensile strength [MPa]		448
90° Tensile modulus [GPa]		23
90° Tensile Poisson ratio		0.13
In plane shear strength (IPSS) [MPa]	EN ISO 6031	100
In plane shear modulus (IPSM) [GPa]		3.5
In plane shear Poisson ratio		0.63
0° Compressive strength [MPa]	ASTM D6641	474
0° Compressive modulus [GPa]		25
90° Compressive strength [MPa]		459
90° Compressive modulus [MPa]		25
0° Interlaminar shear strength (ILSS) [MPa]	EN ISO 14130	62
90° Interlaminar shear strength (ILSS) [MPa]		60

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

8 HS Carbon fabric 630 gsm twill 2/2 12K Pyrofil TR50S, RC 37%.
9 Glass fabric 770 gsm twill 2/2 E-Glass Roving 1200 Tex, RC 32%.

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OTHER PROPERTIES

Fluid compatibility:

E9-150	
	Carbon Laminate[10] 28 days Absorption @ RT
Fuel RON 102 (E10)	-0.200%
Fuel RON 98	-0.742%

EXOTHERM RISK

This matrix system can undergo severe exothermic heat up during the curing process if incorrect procedures are followed. Great care must be taken to ensure that safe heating rates, dwell temperatures and lay-up/bagging procedures are properly executed, especially when molding solid
laminates with high thickness.
The risk of exotherm increases with lay-up thickness and increasing of temperature cure. It is strongly
recommended that the user identifies a safe cure cycle through trials that are representative of all the relevant processing parameters. It is also important to recognize that the model or tool material and its thermal mass,
combined with the insulating effect of breather/bagging materials can affect the risk of an exotherm. Please contact our technical department for further information on the exotherm behavior of these systems.

AVAILABILITY

E9-Series prepregs are available in a wide range of reinforcing fabrics and UD, 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: E9-150, E9-150N, E9-150N2,
E9-052: SDS-401

[10] HS Carbon fabric 630 gsm twill 2/2 12K Pyrofil TR50S, RC 37%; cure cycle 90'@130°C.

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