

X1-300 is a 130°C curing matrix for FST applications designed to deliver good performances and aesthetic features laminates whilst meeting demanding fire requirements. This resin system complies with the Standard UL94-V0³, FAR/JAR25.853² for some specific configurations. FST third party lab certifications are available upon request.

PRODUCT VARIANTS

X1-304 HM: Light black pigmented

X1-304: Light black pigmented

X1-311: Black pigmented

X1-311 HM: Black pigmented

SHELF LIFE



OUT LIFE¹
3 weeks @ 21 °C



STORAGE LIFE
12 months @ -18 °C

TYPICAL APPLICATIONS



AEROSPACE



AUTOMOTIVE

FEATURES



GOOD COSMETIC PROPERTIES



MEETS FAR 25.853² AND UL94-V0³

¹ 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.

² 1,25mm thick, 2x2 twill 630gsm, CS/FAR 25.853 (a) Appendix F, Part I, (a)(1)(ii).

³ X1-304: minimum 0.8 mm, Cure cycle: 90min at 130°C, 6bar;

X1-304 HM: >4 mm, Cure cycle: 90min at 130°C, 6bar;

For more information check the relative table in the next pages.

NOTE: All technical information contained in this document are given in good faith and are based on tests believed to be reliable, but their accuracy and completeness are not guaranteed. They do not constitute an offer to any person and shall not be deemed to form the basis of any contract. Accordingly, the user shall determine the suitability of the products for their intended use prior to purchase and shall assume all risk and liability in connection therewith. The information contained herein is under constant review and liable to be modified. All products are sold subject to Microtex Composites Srl terms and conditions of sale.

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



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

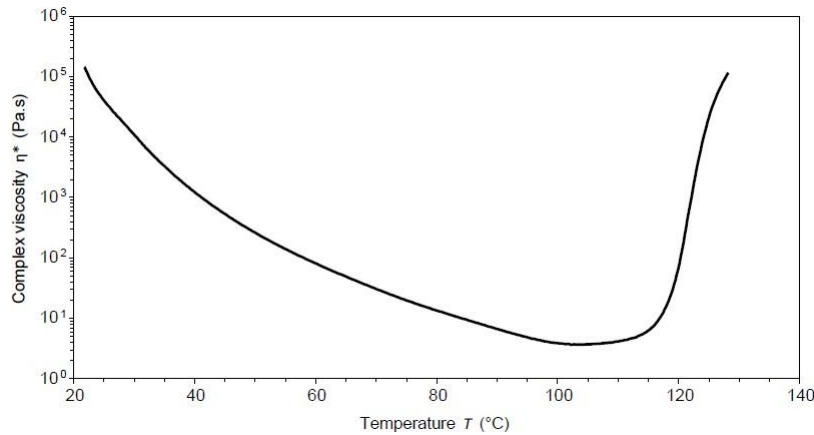


Quality system certified
IATF 16949:16
by TUV SUD Management Service GmbH
cert. no. 0447526

MATRIX PROPERTIES

Matrix density @ RT: (average value) 1.20 g/cm³.

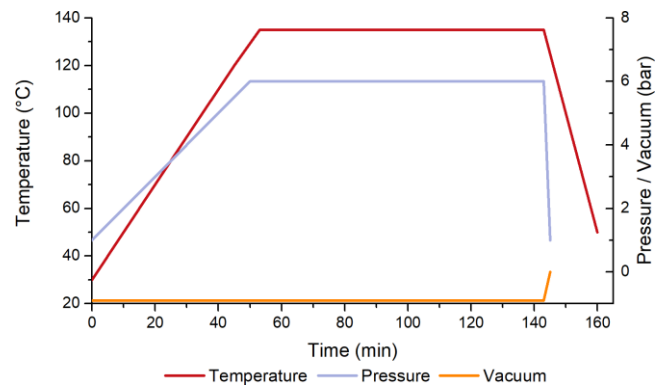
Resin viscosity: ramp rate = 2 °C/min, strain % 0.1, frequency 1.0 Hz



CURING CONDITIONS

Recommended Autoclave Cure ^{4,5}

Time (min)	Temp. (°C)	Time (min)	Pressure (bar) ⁶
0	30	0	1
30	90	10	2
45	120	30	4
53	135	50	6
143	135	143	6
160	50	145	1



ALTERNATIVE CURING CYCLE AND T_g

Cure cycle	T _g (DMA) Onset (°C)	T _g (DMA) tanδ (°C)
60 min @ 120 °C	134	162
90 min @ 130°C	144	167

The reported DMA tests were performed on the following sample: GG630T 12K 4 plies X1-304HM

⁴ Temperature must be measured by the lagging thermocouple attached to the part.

⁵ Vacuum bag pressure: 0.9 bar.

⁶ On a sandwich production, adjust the pressure on core specifications to avoid buckling and/or distortion.

MECHANICAL PROPERTIES

		GG430T-40 ⁷ (T700 grade)	GG630T-38 ⁷ (T700 grade)	GD290T-50 ⁸ (T700 grade car-
Property	Test Method	Values*		
0° Tensile strength [MPa]	ASTM D3039	1124	1074	703
0° Tensile modulus [GPa]		67	68	54
0° Compressive strength [MPa]	SACMA SRM 1R-94	985	641	251
0° Compressive modulus [GPa]		65	48	34
0° Interlaminar shear strength (ILSS) [MPa]	ASTM D2344	62	63	41
0° Flexural strength [MPa]	ASTM D790	1054	923	388
0° Flexural modulus [GPa]		57	56	38
Mode I strain energy release rate G1c [J/m ²]	ASTM D5528 (MBT METHOD)	-	420 ÷ 450	-

* Test conditions: room temperature, dry. Normalized values at 55% VF for GG fabrics, actual values for GD Fabric.

FLAMMABILITY - UL94-V0

	V0	V1
X1-304 HM	>3.7 mm*	<3.7 mm
X1-304	>0.8 mm*	-
X1-304	>0.4 mm**	-
X1-311	>0.8 mm	-

*Certificate present

**Internal test

⁷ Cure cycle: 90 min @ 135 °C, 6 bar. Ramp 2 °C/min. Resin system: X1-304 HM variant.

⁸ Cure cycle: 60 min @ 120 °C, 4 bar. Ramp 2.5 °C/min. Resin system: X1-304 HM variant.

FLAMMABILITY – FAR 25853

X1-304 HM			
	Burnt length (mm)	After flame time (s)	Drip flame time (s)
Average value	104.7	0.0	0.0
Acceptance criteria ⁹	<152	<15	<3

*Certificate present for:

GG380T X1-304 HM 2 plies.

GG205T X1-304 HM 4 plies.

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.

CHARACTERISTIC MARK

Possible shelf-life reduction for prepregs of higher weights (>400 gsm) might be experienced for X1-304 variant.

AVAILABILITY

X1-300 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.

SIS Reference Codes: X1-300/304/311: SIS-472

⁹ According to CS/FAR 25.853 (a) App. F, Part I, (a)(1)(i).