

E4-250 has been developed as a structural product, offering good mechanical performance at high operating temperatures. If fully postcured, E4 will develop a Tg (DMA) Onset exceeding 230°C. This offers possibilities for using this product in structures and components operating up to and exceeding 210°C.

The anticipated applications include motorsport structures and defence.¹

PRODUCT VARIANTS

E4-250: Unpigmented

SHELF LIFE



OUT LIFE
28 days @ 21 °C



STORAGE LIFE
12 months @ -18 °C

TYPICAL APPLICATIONS



**HIGH TEMPERATURE
PARTS**

FEATURES



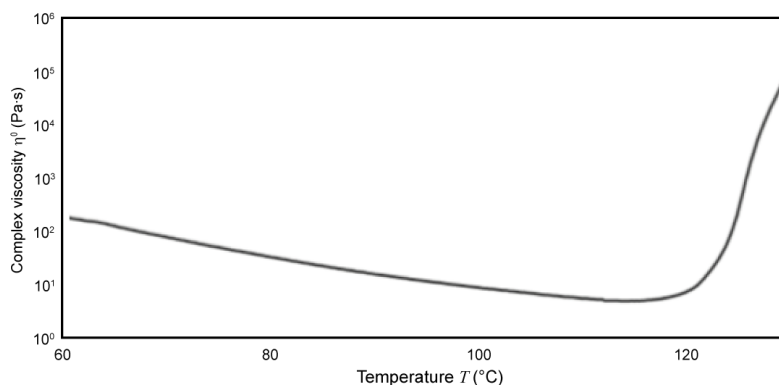
VERY HIGH Tg

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

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. Copyright 2020 - Microtex Composites Srl. All rights reserved worldwide. All trademarks or registered trademarks are the property of their respective owners.

MATRIX PROPERTIES

Resin viscosity: ramp rate = 2 °C/min, shear rate 2.5 Hz .



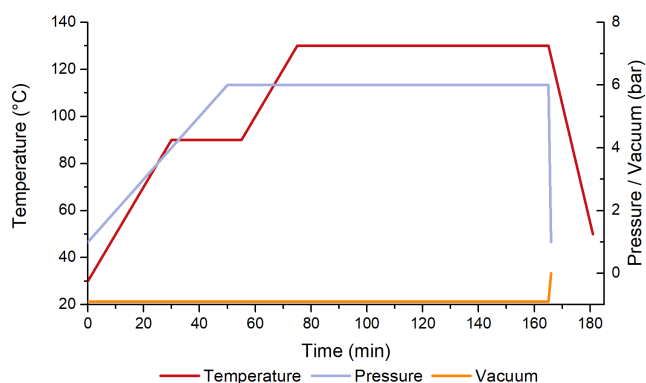
Gel Time: (Hot Plate)

Plate Temperature	
140 °C	3±1 min

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	135	50	6
165	135	165	6
181	60	166	1



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.

POST-CURING CONDITIONS

Oven ramp rate	No more than 0.33 °C/min (20 °C/h)
Postcure Dwell Conditions	4 h @ 180 °C (+5/-0 °C)
Cooling down	2 °/min until 50 °C

CURING CYCLES AND Tg's

Cure cycle	Tg (DMA) ⁵ Onset (°C)	Tg (DMA) ⁵ tanδ (°C)
90 min @ 135 °C	143	178
Postcured as above	231	247

MECHANICAL PROPERTIES

UD124-34⁶

90 min @ 135, 6 bar 90 min @ 135, 6 bar

Property	Test Method	Values*	
0° Tensile strength [MPa]	ASTM D3039	2831	2574
0° Tensile modulus [GPa]		170	163
0° Compressive strength [MPa]	SACMA SRM 1R-94	1663	1684
0° Compressive modulus [GPa]		114	115
0° Interlaminar shear strength (ILSS) [MPa]	ASTM D2344	109	104
			97 ⁷

* Test conditions: room temperature, dry . Normalized values at 60% VF.

⁵ ASTM D7028 3-point bending - Frequency = 1 Hz - Temperature ramp = 5 °C/min (on laminate with 245 gsm).

⁶ HS Carbon 124 gsm UD 24K IM65 - RC 34%.

⁷ Cure cycle: 90 min @ 135 °C + 4 h @ 180 °C + 30 h @ 180 °C

MECHANICAL PROPERTIES

90 min @ 135, 6 bar + 4h @ 180 °C

GG380T-38⁸

GG630T-37⁹

Property	Test Method	Values*	
0° Tensile strength [MPa]	ASTM D3039	679	569
0° Tensile modulus [GPa]		70	62
0° Compressive strength [MPa]	SACMA SRM 1R-94	847	628
0° Compressive modulus [GPa]		52	48
0° Flexural strength [MPa]	ASTM D790	865	943
0° Flexural modulus [GPa]		53	59
0° Interlaminar shear strength (ILSS) [MPa]	ASTM D2344	50	51

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

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

E4-250 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: E4-250: SDS-439

⁸ HS Carbon fabric 380 gsm twill 2/2 12K ZH SYT49S, RC 38%.

⁹ HS Carbon fabric 630 gsm twill 2/2 12K PYROFIL TR50S, RC 37%.