

TECHNICAL DATA SHEET

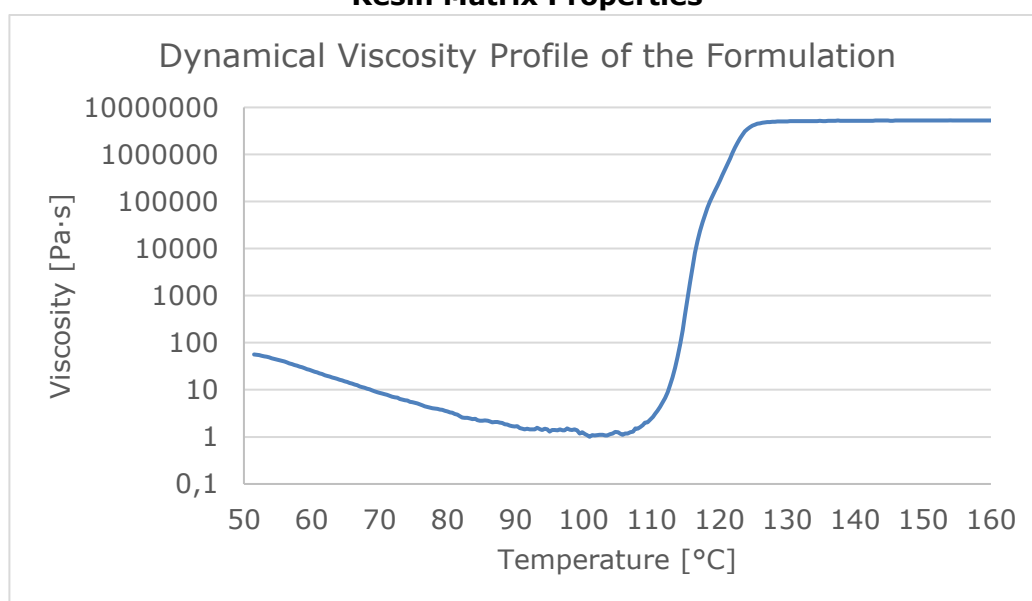
Resin System	CM11
Applications	Visual composites, Automotive
Key Features	Suitable for fast press molding Class A Surface quality Good hot de-molding performance Suitable for structural applications Good chemical resistance Suitable for Cataphoresis/ Hot Painting/Hot adhesive bonding Suitable for autoclave short curing cycle
Cure Temperature	150°C - 180°C < 5 minutes
Work Life	2 weeks @ RT
Storage Life	6 months @ -18°C
Fiber	Carbon, E-glass
Weaving Style	Plain, twill, UD
Dry Fabric Areal Weight (gsm)	200 - 600
%Resin Content (by weight)	37 - 48 ± 2
Tackiness Level	Low Tack
Tack Life	5 Days @ RT

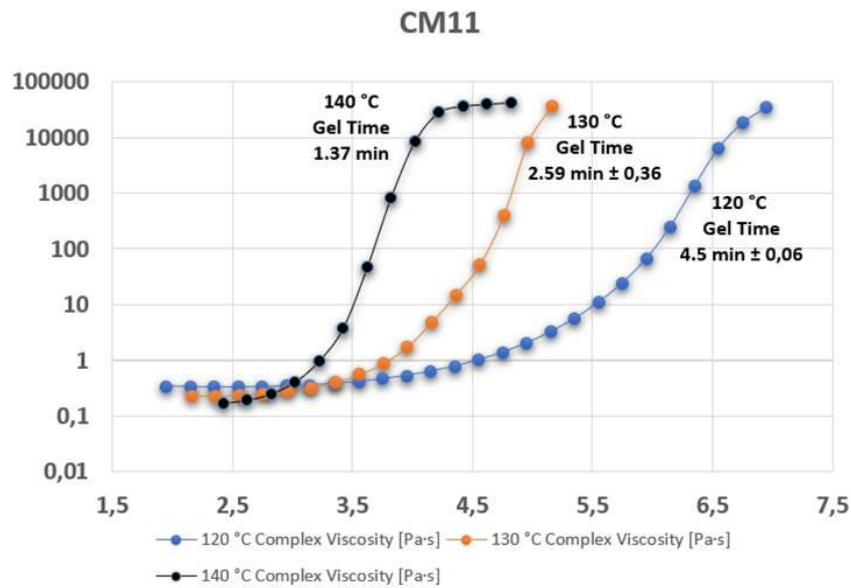
Initial Mix Viscosity	at 65°C [Pas]	35
Gel Time (Hot Plate)	at 140°C [sec]	70
	at 150°C [sec]	40
	at 160°C [sec]	15
	at 120°C [sec]	260
Gel Time (Rheometer)	at 140°C [sec]	69
	at 150°C [sec]	54
	at 160°C [sec]	38
	at 180°C [sec]	17
	at 23 °C	2 weeks
Prepreg Shelf Life	at 23 °C	2 weeks

Cured Matrix Properties

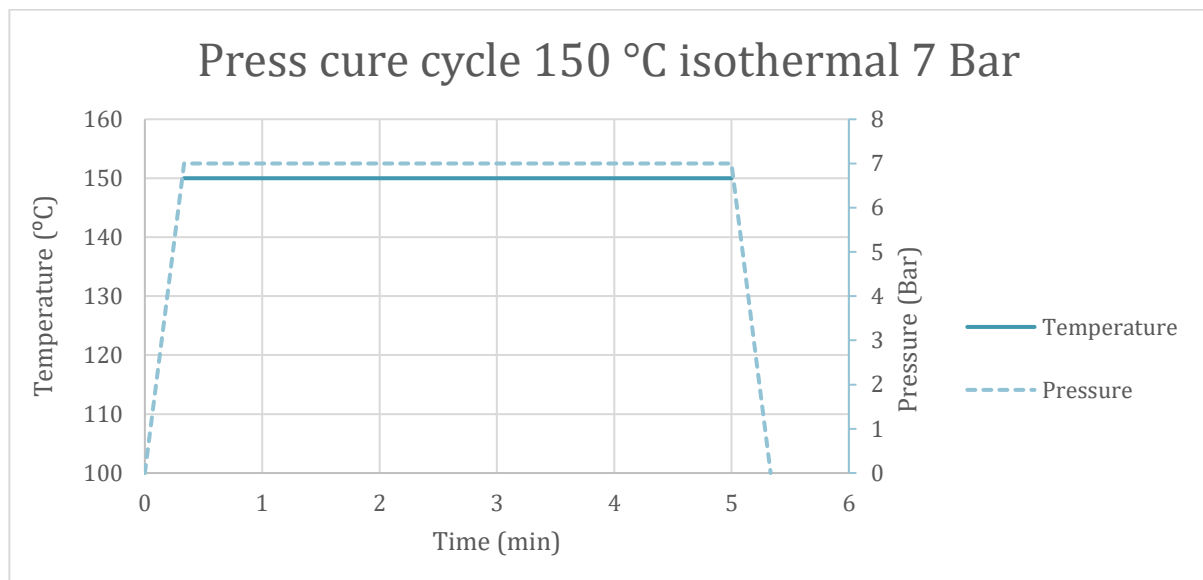
Cured Matrix Properties (cured at 80 °C 30 minutes → 100 °C 30 minutes → 140 °C 60 minutes)		
Glass Transition Temp (T_g by DSC) [°C]	Isothermal press @160°C , mold@ RT Wait to mold reach 160°C @160°C 5 min Ramped 160 to 210°C (10°C/min)	160
T_g DMA 1Hz, 3°C/min [°C]	Maximum of Tanδ	175
HDT (TMA)	Maximum Displacement (°C)	160
Tensile Test (ISO 527)	Tensile Strength (MPa)	47
	Tensile Modulus (MPa)	3134
	Elongation at maximum (%)	1,96
Compression Test (ISO 604)	Compression Strength (MPa)	242
	Compression Modulus (MPa)	1381
Flexural Test (ASTM D790)	Flexural Strength (MPa)	139
	Flexural Modulus (MPa)	3177
	Elongation at maximum (%)	6.23
V Notched Shear Test (ASTM D5379)	Shear Strength (MPa)	47
	Shear Chord Modulus (MPa)	1414
Charpy Impact (ISO 179)	Impact Energy (kJ/m ²)	3.3
Density (ASTM D 792)	Density (g/cm ³ 20°C)	1.214 ±0.16%

Resin Matrix Properties





Cure Profile
Compression Molding (Recommended)



Pressure: Minimum of 7 bar (7.2 kg/cm²) (*) up to 30 bar is recommended for 3D part geometries.

Ramp Rate: Consolidated prepregs (preforms) can be loaded into a pre-heated tool (compression molding), as possible as short time (equal or less than 20 seconds) closing the mold and direct application of 7 bars are strongly recommended.

Recommended Cure Cycle: 5 minutes at 150 C +/-5C inside mold, 7 to 30 bar @ Press

Cool Down: Cured parts can be removed from tool without cooling (hot demolding).

Post-Cure Cycle(If needed): 6 hours at 150 C +/-5C @ Oven

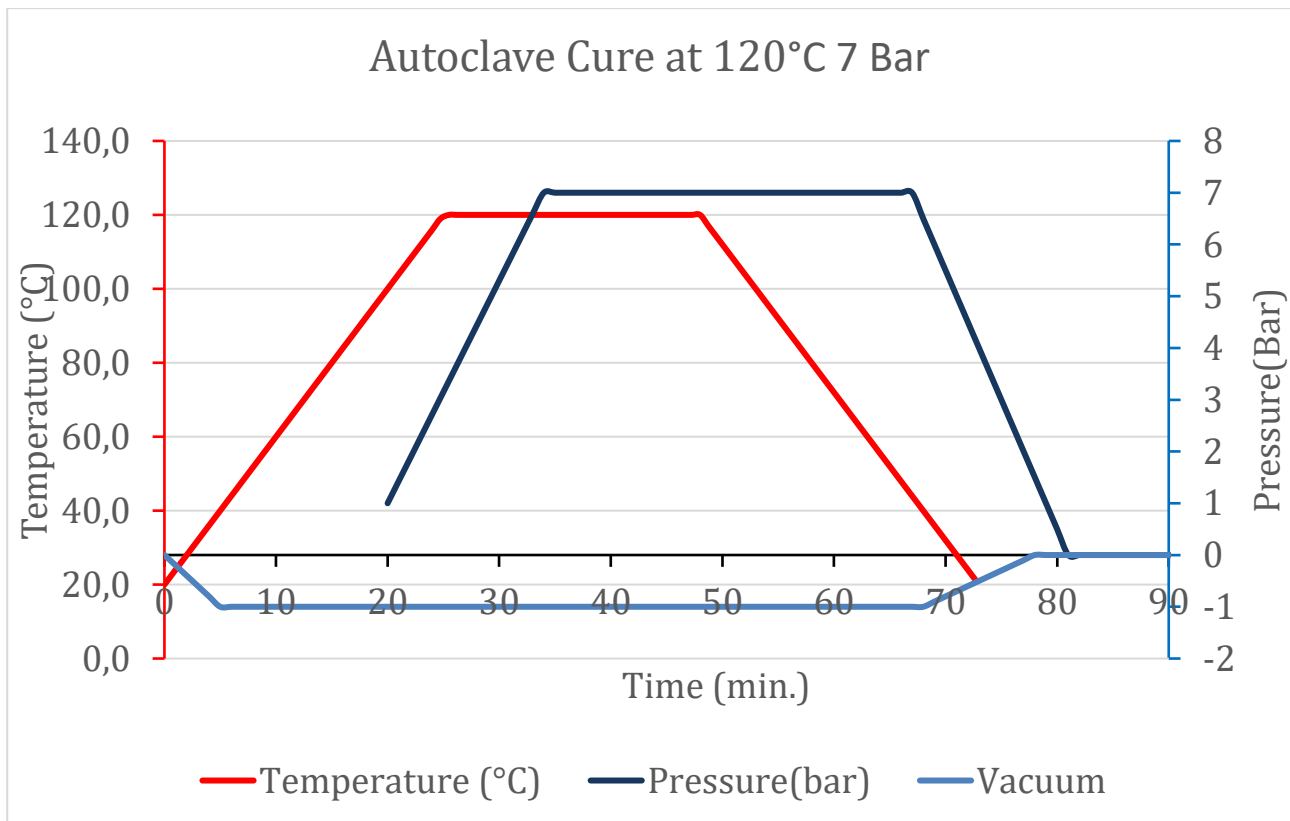
(*) It may be necessary to adjust and optimize the pressure applied and the time when the pressure it is applied in order to achieve the best quality on the part

COMPRESSION MOULDING is the recommended process for the CM11 resin system

Autoclave Molding

A typical autoclave cure cycle for a thin laminate is 30 minutes at 120°C.

- 1) First apply full vacuum (1bar) before put in autoclave.
- 2) In autoclave, reduce the vacuum to a safety value of 0.2 bar when the autoclave pressure reaches approximately 1 bar gauge.
- 3) Heat-up at 1 – 3 °C/minute to 120°C.
- 4) At 80°C apply full vacuum (1 bar) and start applying pressure (7 bar)
- 5) Hold at 120°C 30 minutes $\pm$ 5 minutes.
- 6) Cool at 2 – 5 °C per minute.
- 7) Vent autoclave pressure and release vacuum when the component reaches 60°C.



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