SR GreenPoxy 28 / SH 166 / SX AC1MI
3K Epoxy Resin Systems with Bio-based content

***SR GreenPoxy* 28** **Epoxy resin** is produce with about 28% of carbon from plant origin.
The bio-based Carbon content of our resin is certified by an independent laboratory using Carbon 14 measurements (ASTM D6866 or XP CEN/TS 16640)
This percentage is function of the carbon origin contained in the epoxy molecule.

***SR GreenPoxy* 28** is a clear resin with high-viscosity.
Lower environmental impact than standard Epoxy Bisphenol-A epoxy.

Profile:
3K hot curing anhydride epoxy system with extremely long pot life and very low viscosity.
The gel time can be adjusted by addition of accelerator.

Applications:
Pultrusion, filament winding…

SR GreenPoxy 28

Chemical nature	Epoxy resin			
Viscosity mPa.s +/- 20 %	@ 15 °C @ 20 °C @ 25 °C @ 30 °C @ 40 °C @ 50 °C @ 60 °C	65 000 21 000 8500 4 500 1300 490 220	@ 70 °C @ 80 °C @ 90 °C @ 100 °C @ 110 °C @ 120 °C	120 70 45 30 20 16
% Bio-based Carbon content		25 to 30		
Color	Gardner Pt-Co	< 3 500 max		
Volatil organic content *3 h @ 140 °C*	%	< 0.2 %		
Density	@ 20 °C	1.17 ± 0.01		
Refractive index	@ 25 °C	1.572 ± 0.003		
Vapor presure	@ 80 °C	< 0.1 mbar		
Flashpoint		> 250 °C		
Storage stability @ 23 °C	2 years minimum Can crystallize at low temperature or after a long storage. If SR GP28 develops a haziness or crystallizes on storage, this can be dispersed and the resin restored to its original condition by warming to 50 – 60 °C, with stirring			

Hardener SH 166

Appearance		Fluid liquid	
Chemical nature		Anhydride Hardener	
Storage		The liquid deteriorates in the presence of moisture. Close packaging after use.	
Colour Colour Gardner scale		Clear to light yellow Gardner < 2	
Density	@ 25 °C	1.230 ± 0.020	Pyknometer NF EN ISO 2811-1
Refractive index	@ 25 °C	1.497 + 0.003	
Flash point (°C)		195	DIN 51 584
Viscosity (mPa.s)	@ 20 °C @ 25 °C @ 30 °C @ 40 °C	97 ± 20 68 ± 15 50 ± 10 28 ± 6	Rheometer CP 50 mm Shear rate : 10 s^{-1}

Accelerator SX AC 1MI

Appearance		Fluid liquid	
Chemical nature		1-methyl imidazole	
Colour Colour Gardner scale		Clear liquid Gardner < 8	
Density	@ 25 °C	1,000 ± 0,02	Pyknometer NF EN ISO 2811-1
Refractive index	@ 25 °C	1,495 ± 0,003	
Flash point (°C)		93	DIN 51 584
Viscosity (mPa.s)	@ 25 °C	< 50	Rheometer CP 50 mm Shear rate : 10 s^{-1}

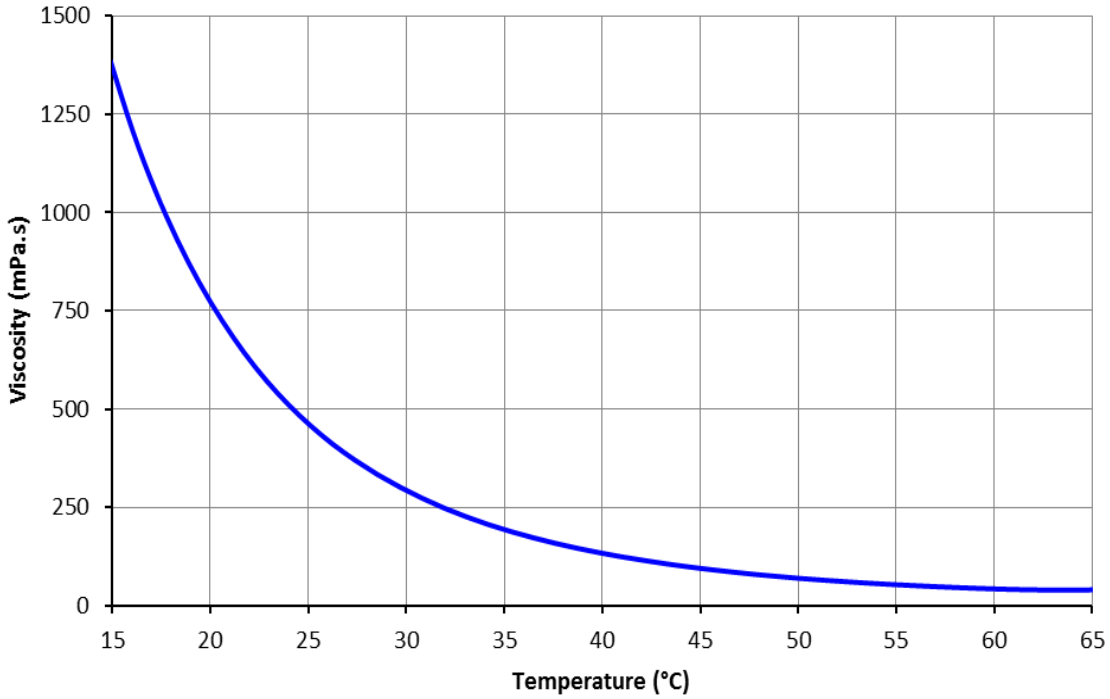
SR *GreenPoxy* 28/ SH 166 / SX AC 1MI Mixes :

		Part by weight	Part by volume
Mix Ratio	SR GP 28 SH 166 SX AC 1MI	100 90 0,5 – 2,0	100 86 0,6 - 2,3
Initial viscosities (mPa.s)	@ 25 °C @ 30 °C @ 40 °C @ 60 °C	460 ± 90 275 ± 55 135 ± 25 42 ± 8	

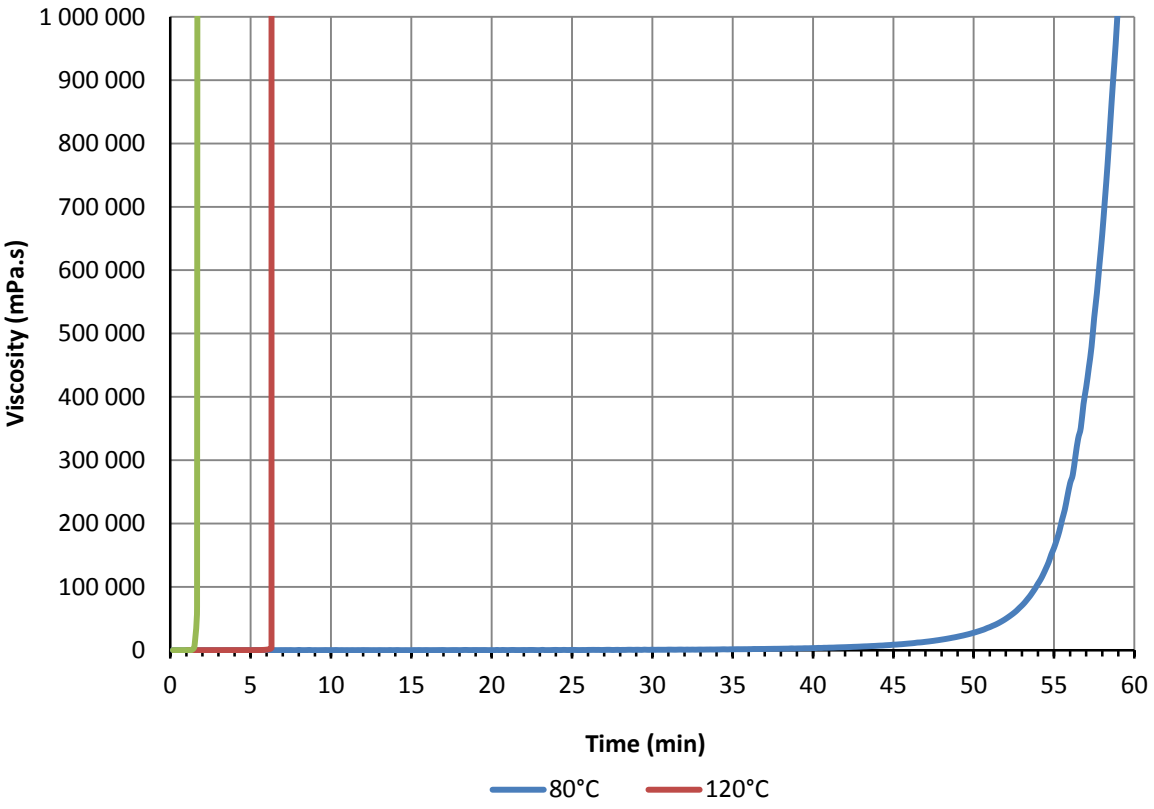
System Reactivity as a Function of Accelerator pbw

	SR GP 28 SH 166 SX AC 1MI	100 90 0,5	100 90 1	100 90 2
Initial mix viscosity (mPa.s)	25 °C 40 °C 60 °C	460 135 40		
Gel time on 1 mm layer (min)	80 °C 120 °C 140 °C	220 22 8	135 10 4	56 6,5 2
Curing cycle recommended		4 h @ 80 °C + 8 h @ 140 °C		

Initial Mix Viscosities: 15 to 65°C



Viscosity build-up with 2 pbw of SX AC1MI @ 80°C, 120°C and 140°C



Mechanical Properties of Pure Resin

		SR GP 28 / SH 166 / SX AC1MI
Cure Schedule →		4h @ 80°C + 8h @ 140°C
Tensile		
Modulus of elasticity	N/mm^2	3250
Maximum resistance	N/mm^2	87
Resistance at break	N/mm^2	85
Elongation at maximum resistance	%	5,0
Elongation at break	%	6,0
Flexion		
Modulus of elasticity	N/mm^2	3650
Maximum resistance	N/mm^2	131
Charpy impact strength		
Resilience	KJ/m^2	NC
Glass Transition / DSC		
Tg 1	°C	147
Tg 1 max	°C	154

Measures undertaken according to the following norms:

Tests carried out on samples of pure cast resin, without prior degassing, between steel plates.

Tension:	*ISO 527 - 2*
Flexion:	*ISO 178*
Charpy impact strength:	*NF T 51-035*
Shear Strength:	*ASTM D 732 - 93*
Compression:	*ISO 604*
Water absorption:	*Internal. Polymerization according to cycle, machining, weighing, time spent in distilled water at 70 °C / 48 hours, weighing 1 hour after emerging,*
Glass transition DSC:	*ISO 11357-2: 1999 -5°C to 180 °C at 20 °C/min under nitrogen gas* *T_{G1} or Onset: 1st passage* *T_{G1} maximum or Onset: 2nd passage*
Glass transition DTMA:	*Temperature ramp 0 °C to 180 °C @ 2 °C/min* *ISO 11357-1 - T_G onset G'* *ASTM D4065 - T_G peak G''*

Physical tests according standard:

Gardner color:	*NF EN ISO 4630*	*Visual method*
Refractive index:	*NF ISO 280*	
Viscosity:	*NF EN ISO 3219*	*Rheometer 50 mm, shear 10 s^{-1}*
Density:	*NF EN ISO 2811-1*	*Pycnometer*
Density solid	*NF EN ISO 845*	
Gel time:	*Cross G' G''*	*Rheometer CP50 - Shear rate 10 s^{-1}*
Green Carbone content:	*ASTM D6866 or XP CEN/TS 16640 Avril 2014*	

TA: *Ambient temperature*

LEGAL NOTES:

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