SR GreenPoxy 56
Clear epoxy resin

High bio-based content

***SR GreenPoxy* 56** resin is out coming from the latest innovations in bio-based chemistry.

***SR GreenPoxy* 56** resin is produce with a high content of carbon from plant origin.
The bio-based Carbon content of our system is certified by an independent laboratory using Carbon 14 measurements (ASTM D6866 or XP CEN/TS 16640)

This is a significant technological advance on the following points:
Clarity, color, performances and guarantees of industrial tonnages availability.

***SR GreenPoxy* 56** is an epoxy resin which has up to 56% of its molecular structure coming from plant origin.
This percentage is function of the carbon origin contained in the epoxy molecule.
The final rate of the mix bio-based carbon content will depend on the hardener choice.

***SR GreenPoxy* 56** resin is available with multiple hardeners to match your exact needs.

GreenPoxy®

Sicomin, 31 avenue de la Lardière, 13220 Châteauneuf les Martigues, France
T: +33 (0)4 42 42 30 20 / F: +33 (0)4 42 81 29 29 / E: info@sicomin.com / www.sicomin.com

Applications

- Hand lamination for tooling or industrial parts
- RTM processes (infusion, injection…)
- Filament winding
- Hot or cold press
- Casting
- Bonding

Resin SR GreenPoxy 56:

Aspect / colour		Clear liquid
Storage		2 years, crystallisation free
Viscosity (mPa.s ± 20 %)		
	@ 15 °C	2500
	@ 20 °C	1400
	@ 25 °C	800
	@ 30 °C	500
	@ 40 °C	250
GreenPoxy® % bio-based Carbon content		50 - 58
Color (Gardner)		2 max
Density ± 0.005	@ 20 °C	1.198
Refractive index ± 0.5 %	@ 25 °C	1.5350

***SR GreenPoxy* 56 / SD Surf Clear** hardener mix example:

Hardener SD Surf Clear

Aspect / colour		Liquid / clear
Typical reactivity		Standard
Viscosity (mPa.s ± 20 %)		
	@ 15 °C	80
	@ 20 °C	60
	@ 25 °C	40
	@ 30 °C	30
% bio-based carbon content		0
Color (Gardner)		1 max
Density ± 0.005	@ 20 °C	0.958

SR GreenPoxy 56 / SD Surf Clear mix properties

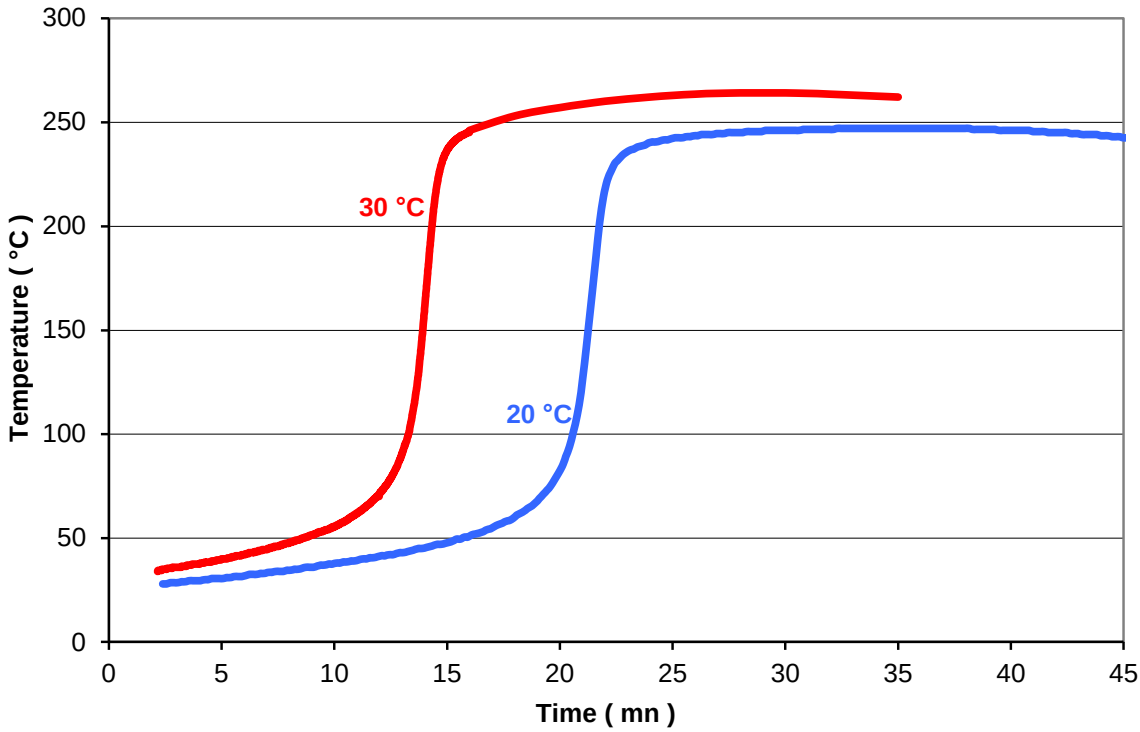
Weight ratio	100 / 37 g
Volume ratio	100 / 47 ml
% mix bio-based carbon content	35-41
Mix viscosity (mPa.s ± 20 %))	
@ 20 °C	900
@ 30 °C	330
@ 40 °C	200

Reactivity – mass exotherm

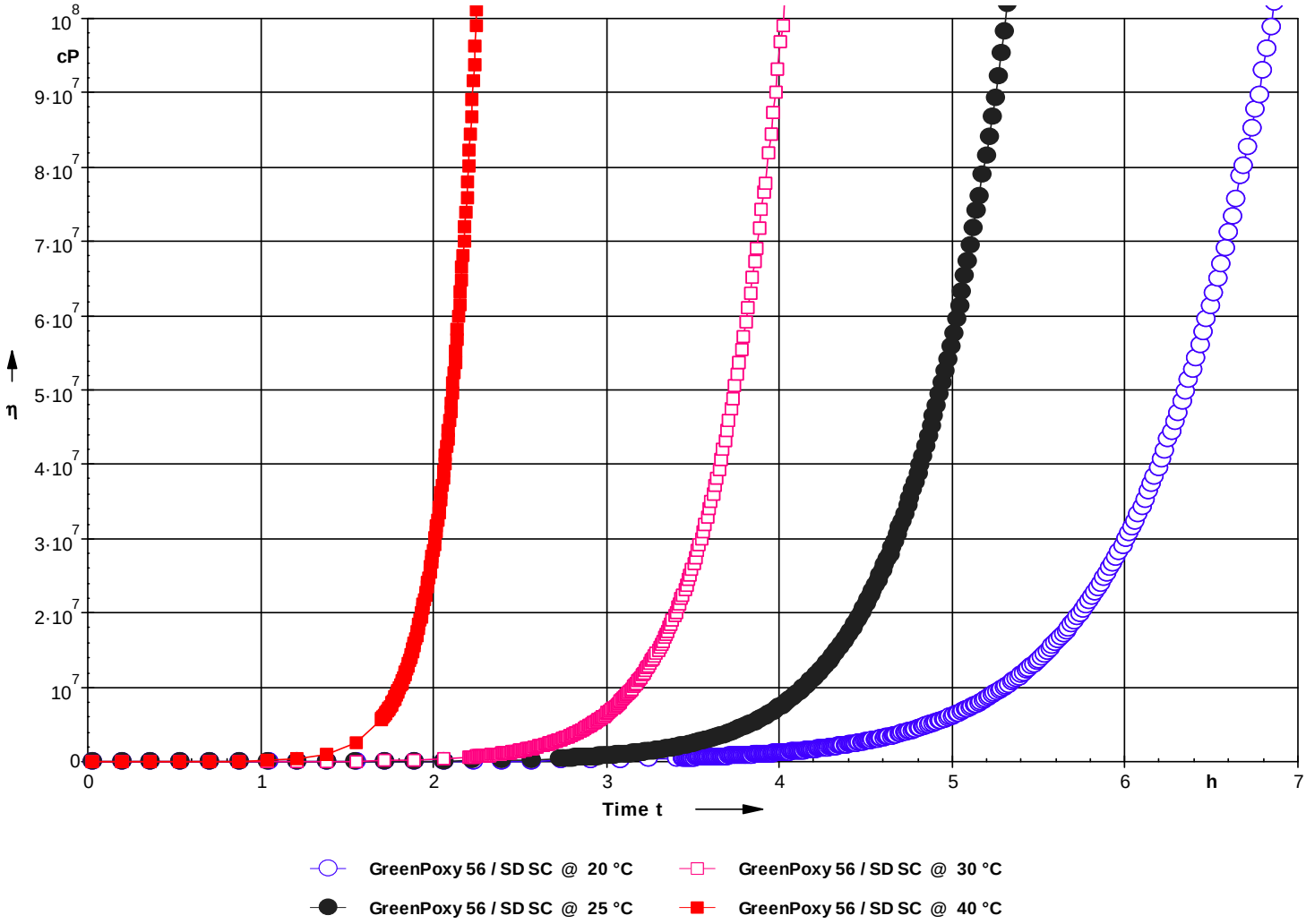
Exothermic peak on 500 g mix :	
@ 20 °C	250 °C
@ 30 °C	265 °C
Time to reach exothermic peak on 500 g mix :	
@ 20 °C	32’
@ 30 °C	28'
Time to reach 50 °C on 500 g mix :	
@ 20 °C	15’
@ 30 °C	8’

Exotherms on 500 g mix @ 20 and 30 °C:

NB: Large casting develop very exotherm temperature and high smokes densities



Reactivity – 1 mm film viscosity evolution



Gel time on 1 mm thickness:

@ 20 °C	4 h
@ 25 °C	3 h 10’
@ 30 °C	2 h 25’
@ 40 °C	1 h 25’

Mechanical properties on pure casted resin

		SR GreenPoxy 56 / SD Surf Clear	SR GreenPoxy 56 / SD Surf Clear	SR GreenPoxy 56 / SD Surf Clear
Curing cycle		7 days @ 23 °C	24 hrs @ 23 °C + 24 hrs @ 40 °C	24 hrs @ 23 °C + 4 hrs @ 40 °C + 8 hrs 60 °C
Tension				
Modulus of elasticity	N/mm^2	3 200	3 300	3 300
Maximum resistance	N/mm^2	50	49	51
Resistance at break	N/mm^2	49	48	51
Elongation at max. load	%	1.6	1.6	1.7
Elongation at break	%	1.6	1.6	1.7
Flexion				
Modulus of elasticity	N/mm^2	3 300	3 400	3 300
Maximum resistance	N/mm^2	114	114	123
Elongation at max. load	%	4,5	4,2	5,5
Elongation at break	%	4,7	5,5	6,4
Charpy impact strength				
Resilience	kJ/m^2	20	16	16
Glass transition				
Tg1 onset	°C	53	65	78 / 78
Tg1 onset maximum	°C	-	-	85

Tests carried out on samples of pure cast resin, without prior degassing, between steel plates.
Measures undertaken according to the following norms:

Tension:	*Iso 527 - 2*
Flexion :	*Iso 178*
Charpy impact strength:	*NF T 51-035*
Shear Strenght	*ASTM D 732 - 93*
Compresive	*NFT51-101*
Water absorption:	*Internal. Polymerisation 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 under nitrogen gaz Tg1 or Onset : 1st point at 20 °C/mn Tg1 maximum or Onset : second passage*
Glass transition by DMTA	*2 °C/mn,4 mm thickness, air*

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 10s^{-1}*
Density:	*NF EN ISO 2811-1*	*Pyknometer*
Gel time :	*Cross G' G'' / rheometer CP50 - Shear rate 10 s^{-1}*	
GreenCarbon content:	ASTM D6866 or XP CEN/TS 16640 Avril 2014	

Other hardeners mix possibilities with *SR GreenPoxy 56 resin*

	Mixing By weight	GreenPoxy® % mix bio-based content + 10 %	Tg 1 maximum or Onset (°C)	Best use
***SR GreenPoxy 56 /* SD Glass One**	100 / 42	36	69	Clear laminates
***SR GreenPoxy 56 /* SD 1213**	100 / 50	34	43	Large clear casting
***SR GreenPoxy 56 /* SD 280x**	100 / 37	37	2806 : 66 2803 : 72 2801 : 80	Multipurpose
***SR GreenPoxy 56 /* SD 477x**	100 / 29	40	4775: 80 4771: 74	Multipurpose
***SR GreenPoxy 56 /* SD 550x**	100 / 37	37	5505 : 78 5503 : 85 5502 : 84	Multipurpose
***SR GreenPoxy 56 /* SD 597.20**	100 / 21	42	100	Very large casting
***SR GreenPoxy 56 /* SD 720x**	100 / 37	37	7206 : 84 7203 : 82 7201 : 80	Multipurpose
***SR GreenPoxy 56 /* SD 860x**	100 / 37	37	8605 : 67 8601 : 56	Multipurpose
***SR GreenPoxy 56 /* SD 882x**	8824 100 / 21 8822 100 / 31	42 39	8824 : 90 8822 : 71	Infusion
***SR GreenPoxy 56 /* SZ 8525**	100 / 24	41	120	Hot process