SR GreenPoxy 28
Clear epoxy resin with bio-based content

SR GreenPoxy 28 Epoxy resin is produced with 28% of carbon originating from biomass.
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.
Can be used with a selection of hardeners to match your requirements.

SR GreenPoxy 28

Chemical nature	Epoxy resin			
Viscosity	@ 15 °C	65 000	@ 70 °C	120
mPa.s +/- 20 %	@ 20 °C	21 000	@ 80 °C	70
	@ 25 °C	8500	@ 90 °C	45
	@ 30 °C	4 500	@ 100 °C	30
	@ 40 °C	1300	@ 110 °C	20
	@ 50 °C	490	@ 120 °C	16
	@ 60 °C	220		
% Bio-based Carbon content		25 to 30		
Color Gardner	/	< 3		
Color	Pt-Co	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 during storage, warming it at 50 to 60 °C, with stirring, will restore it to its original state			

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The combination of ***SR GreenPoxy* 28** with **SD 3304** hardener yields a low viscosity epoxy resin system of medium reactivity, with outstanding wetting-out properties on glass, carbon and aramid fibres.
Due to its excellent impregnation properties, it is a preferred resin for the production of highly resilient composite fibre structures using filament winding technique, hand lay-up or pultrusion.

Hardeners SD 3304

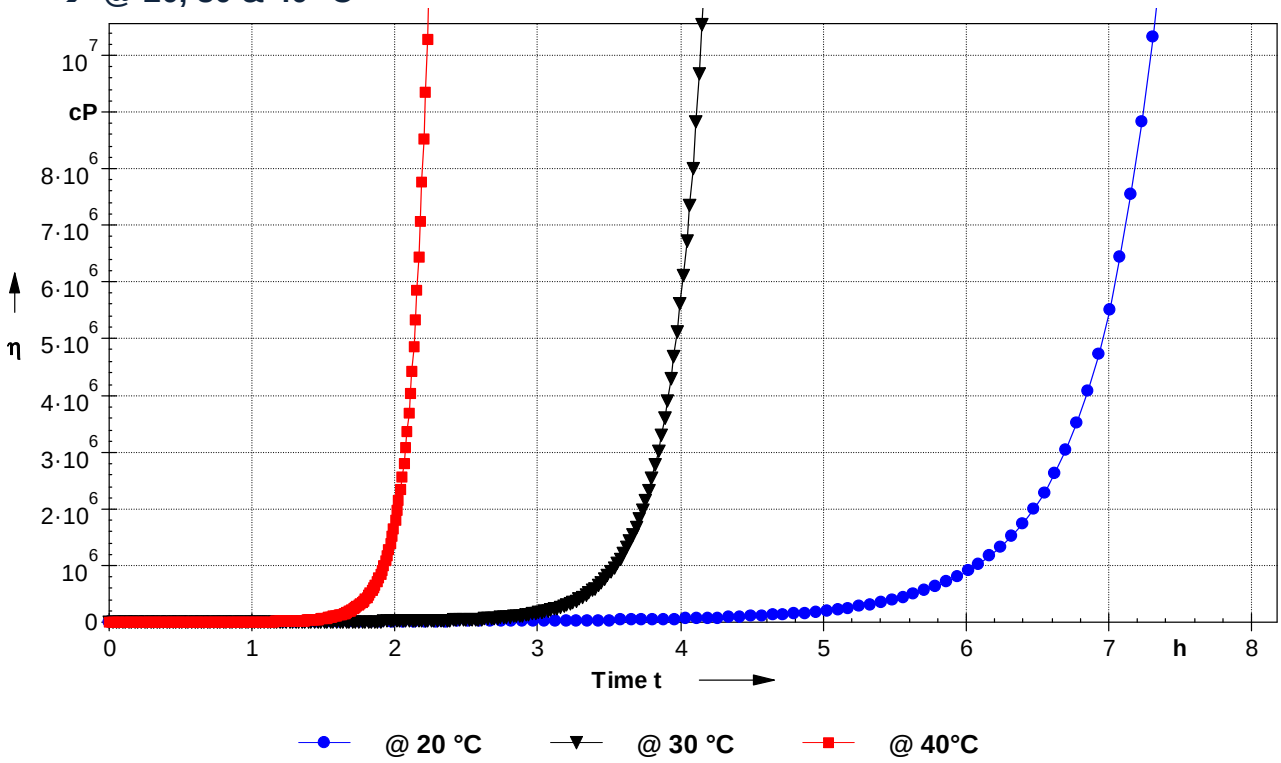
Aspect / colour		Clear / liquid
Color Gardner		2 maximum
Viscosity ± 20 % mPa.s	@ 15 °C @ 20 °C @ 25 °C @ 30 °C @ 40 °C	28 21 16 13 9
Storage stability	15 to 25 °C	24 months SD 3304 hardener reacts irreversibly with air (carbon dioxide and moisture), resulting with white crystal formation. SD 3304 needs to be kept in its original closed container. Avoid any long exposure to air. If SD 3304 develops a haziness or crystallizes during storage, warming it at 50 to 60 °C, with stirring, will restore it to its original state.
Density ± 0.01	@ 20 °C	0.925
Refractive index + 0.002	@ 25 °C	1.4867

Mix SR GreenPoxy 28 / SD 3304

Mixing ratio by weight		**100 g / 24 g**
Mixing ratio by volume		**100 ml / 30 ml**
% bio-based Carbon content (GreenPoxy®)		20 - 23
Initial viscosities ± 20 % mPa.s	@ 20 °C @ 30 °C @ 40 °C	2 000 750 400
Gel time	@ 20 °C @ 30 °C @ 40 °C	7 hrs 3 hrs 45' 2 hrs
Tg onset maximum		150 °C

Viscosities increase on 1 mm film thickness

➔ **@ 20, 30 & 40 °C**



Mixing tolerance
The maximum allowable mixing tolerance is ± 2pbw, but it is particularly important to observe the recommended mixing ratio as exactly as possible. Adding more or less hardener will not affect a faster or slower reaction - but an incomplete curing which cannot be corrected in any way.
Resin and Hardener must be mixed very thoroughly. Mix until no clouding is visible in the mixing container. Pay special attention to the sides and the bottom of the mixing container.

Processing Temperature
A good processing temperature is in the range between 20 °C and 30 °C. Higher processing temperatures are possible but will shorten the pot life. A rise in temperature of 10 °C reduces the pot life by approx. 50%. Different temperatures during processing have no significant effect on the strength of the hardened product.
Do not mix large quantities at elevated processing temperatures. The mixture will heat up fast because of the dissipating reaction heat (exothermic reaction).
This can result in temperatures of more than 200 °C in the mixing container.

Exemplify Curing Cycle:
Depending on production conditions, curing of components can be carried out at different temperatures and times:

a) 8 - 10h at room temperature + 8 – 16 hrs @ 60 °C
b) to shorten curing: 3 hrs @ 30 – 40 °C + 8 – 16 hrs @ 60 °C
c) for greatly enhanced thermoforming stability (Tg onset DSC is 150 °C):
curing as in a) or b) + postcuring 6 - 10h @ 120°C with a temperature heating rate of 20 °C/h.

Mechanical Properties of Pure Resin

Cure		Ambiant + 24 hrs 60 °C	Ambiant + 6 hrs 60 °C + 2 hrs 100 °C + 4 hrs 120 °C
Tension			
Modulus of elasticity	N/mm²	3300	2600
Maximum resistance	N/mm²	67	78
Resistance at break		67	76
Elongation at max. resistance	%	2.4	4.9
Elongation at break	%	2.4	4.9
Flexion			
Modulus of elasticity	N/mm²	3400	2700
Maximum resistance	N/mm²	122	122
Elongation at max. resistance	%	3.7	6.3
Shear strengh	N/mm²	51	52
Compression			
Compressive yield strength	N/mm²	117	111
Offset compressive yield	%	15	21
Charpy impact strength			
Resilience	KJ/m²	11	16
Glass Transition			
Tg 1 Onset	°C	89	150
Tg 1 Onset maximum	°C		150

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 under nitrogen gas*
T_{G1} or Onset: 1st point at 20 °C/min *T_{G1} maximum or Onset: second passage*

Glass transition DTMA: *ISO 11357-1 - T_G onset G'* *Temperature ramp 0 °C to 180 °C @ 2°C/min*
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*
Gel time:	*Cross G' G''*	*Rheometer CP50 - Shear rate 10 s^{-1}*
Green Carbone content:	*ASTM D6866 or XP CEN/TS 16640 Avril 2014*	

LEGAL NOTES:

The information given in writing or verbally, in the context of our technical assistance and our trials, do not engage our responsibility. They are given in good faith based on SICOMIN's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with SICOMIN's recommendations. So, we advise the users of SICOMIN products, to check by some practical trials they are suitable for the envisaged processes and applications. The customer's storage, the use, the implementation and the transformation of the supplied products, are not under our control and your responsibility only will respond for it.

SICOMIN reserves the right to change the properties of its products. All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data and tolerance may vary due to circumstances beyond our control.

If our responsibility should nevertheless be involved, it would be, for all the damages, limited to the value of the goods supplied by us and implement by the customer. We guaranty the non-reproachable quality of our products, in the general context of sales and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.