

SR *GreenPoxy* 51 UVR / SD 7160



SR *GreenPoxy* 51 UVR is an epoxy system designed for production by casting casting of decorative objects, prototypes, jewellery, thick coating...

- Low reactivity allowing castings up to 10 mm thick at 30 °C
- High clarity, good brightness and colourless.
- High biobased content
- UV resistance enhanced

		SD 7160
Reactivity level		Slow
Initial viscosity (mPa.s)	@ 20 °C	1100
	@ 30 °C	460
Pot Life (150 g)	@ 20 °C	01 h 30
	@ 30 °C	45 min
Mixing ratio	By weight	100 / 50
	By volume	100 / 60
Density		1,065
TG1 max onset	°C	63
Gel Time	@ 20 °C	15 h 50
	@ 30 °C	08 h 00
Demold time	@ 20 °C	80 h 00
	@ 30 °C	40 h 00

SR GreenPoxy 51 UVR resin is out coming from the latest innovations in bio-based chemistry. **SR GreenPoxy 51 UVR** resin is produced 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 51 UVR is an epoxy resin which has 51% 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 51 UVR is designed for production by casting of decorative objects, prototypes, jewellery...

- Low reactivity allowing castings up to 10 mm thick at 30 °C
- High clarity, good brightness and colourless. Easy mixing, we recommend double mixing for better optical quality
- 100% dry extract - almost odorless.
- Excellent impact resistance after post-curing at 40 °C and thermal shock resistance after post-curing at 50-60 °C.
- UV resistance enhanced



Epoxy resin SR GreenPoxy 51 UVR

Appearance		liquid
Color		colourless
Gardner color		≤ 2
Viscosity (mPa.s)	@ 15 °C	2875 ± 575
	@ 20 °C	1600 ± 300
	@ 25 °C	950 ± 190
	@ 30 °C	588 ± 112
Density	@ 20 °C	1,1980
Bio-based Carbon content (%)		51
Storage (months)	@ Ta	24

Hardener(s)

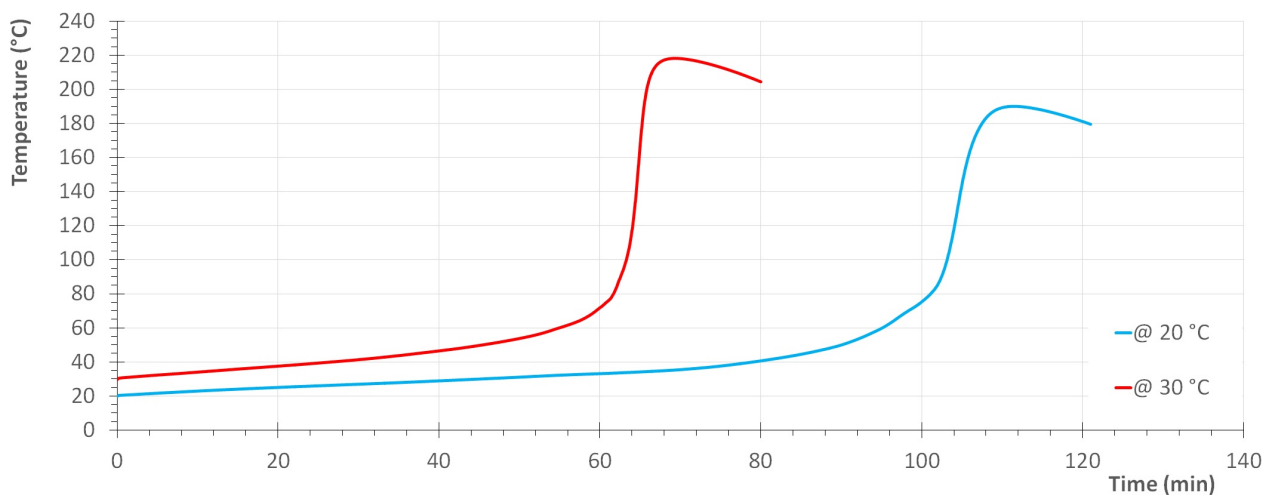
		SD 7160
Appearance		liquid
Color		colourless
Gardner color		≤ 1
Pt/Co Color Index		≤ 50
Reactivity level		Slow
Viscosity (mPa.s)	@ 15 °C	180 ± 30
	@ 20 °C	125 ± 20
	@ 25 °C	90 ± 15
	@ 30 °C	70 ± 10
Density	@ 20 °C	0,9700
Storage (months)	@ Ta	24

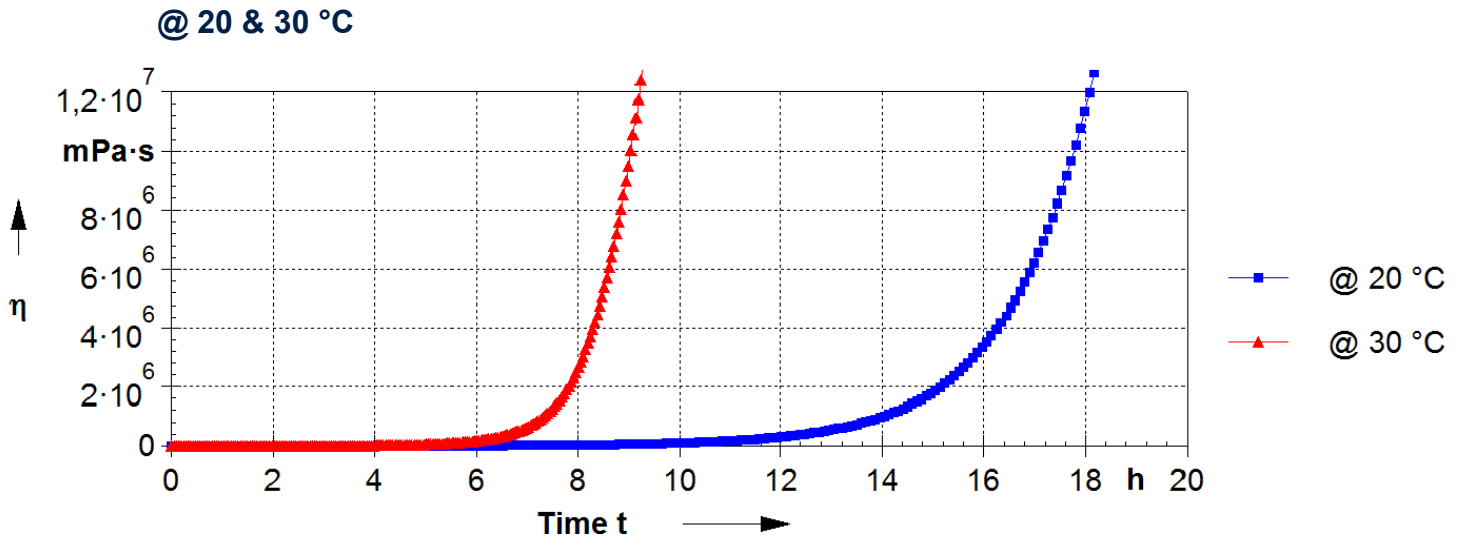
Mixe(s) SR GreenPoxy 51 UVR / SD 7160

		SD 7160
Appearance		liquid
Color		colourless
Mixing ratio		
	By weight	100 / 50
	By volume	100 / 60
Density	@ 20 °C	1,065
Initial viscosity (mPa.s)	@ 20 °C	1100
PP 50 mm / 10 s ⁻¹	@ 30 °C	460

Reactivity for 150 g

	20 °C	30 °C	°C
Exothermic temperature (°C)	190	218	
Exothermic peak time	01 h 50	01 h 08	-
Time to reach 50 °C	01 h 30	45 min	-





Mechanical properties on cast resin :

		SR GreenPoxy 51 UVR / SD 7160		
Curing cycles		48 h @ Ta	24 h @ Ta + 16 h @ 40 °C	24 h @ Ta + 8 h @ 60°C
Tensile				
Modulus	N/mm ²	3 200	3 240	3 120
Maximum strength	N/mm ²	55	56	58
Breaking Strength	N/mm ²	42	39	46
Elongation at max strength	%	2,7	2,8	3,1
Elongation at break	%	3,8	5,4	4,6
Flexion				
Modulus	N/mm ²	2 950	3 050	3 010
Maximum strength	N/mm ²	85	94	94
Breaking Strength	N/mm ²	31	50	68
Elongation at max strength	%	3,8	4	4,3
Elongation at break	%	10,6	11,7	8,9
Shear				
Breaking Strength	N/mm ²	36	37	38
Compression				
Modulus	N/mm ²			
Yield strength	N/mm ²	65	67	77
Offset compression yield	%	9,1	9,1	10,5
Charpy impact strength				
Resilience	kJ/m ²	52	42	44
DSC glass transition				
TG1 onset	°C	49	55	56
TG1 max onset	°C			63
DTMA glass transition				
TG tan delta	°C			
TeiG onset G'	°C			
TmG midpoint G'	°C			
TefG endpoint	°C			
TG peak G''	°C			

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

Measures undertaken according to the following norms:

Mechanical tests:

Tension:	NF EN ISO 527-2:2012
Flexion:	NF EN ISO 178:2011
Compression:	NF EN ISO 604:2004 or NF EN ISO 844:2014 (foam product)
Charpy impact strength:	NF EN ISO 179-1:2010
Shear Strength:	ASTM D732-17 (Punch Tool)
Interlaminar shrinkage strength:	ASTM D5528-13
Toughness (GIC et KIC) :	ISO 13586:2000

Water absorption: Internal. Polymerization according to cycle, machining, weighing, time spent in distilled water at 70 °C / 48 hours, weighing 1 hour after emerging,

Bonding Strength Double lap shear:	ASTM D3528-96
	ADH = adhesive failure
	COH = cohesive failure
	TLC = thin-layer cohesive failure
	FT = fiber-tear failure.
	LFT = light-fiber-tear failure

Thermal tests:

Glass transition DSC:	NF EN ISO 11357-2:2014 -5°C to 180 °C under nitrogen gas
	T_{G1} or Onset: 1 st scan at 20 °C/min
	T_{G1} maximum or Onset: 2 nd scan at 20 °C/min

Glass transition DTMA:	Temperature ramp 0 °C to 180 °C @ 2°C/min under normal atmosphere
	NF EN ISO 11357-1:2016 T_g onset G'
	ASTM D4065-12 T_g peak G''

Physical tests:

Gardner color:	NF EN ISO 4630:2016	Visual method
Refractive index:	NF ISO 280:1999	
Viscosity:	NF EN ISO 3219:1994	Rheometer 50 mm, shear 10 s ⁻¹
Density on liquids:	ISO 2811-1:2016	Pycnometer
Density on solid:	NF EN ISO 1183-3:1999	Helium Pycnometer
Density on foam:	NF EN ISO 845:2009	
Gel time:	Cross G' G''	Rheometer CP50 - Shear rate 10 s ⁻¹
Green Carbone content:	ASTM D6866-16 or XP CEN/TS 16640 Avril 2014	

TA:	Ambient temperature (20 to 25 °C)
NC:	No information Communicated
NB:	No Breaking (maximum flexion deformation : 15 %)

Table 1st page:

Pot Life:	Time to reach 50 °C or time limit for use
Gel time:	Intersection of tangents on the viscosity curve of 1 mm thick layer
Release time:	Time required to obtain sufficient mechanical strength to release
Minimum Vacuum Time:	Time in which vacuum can be applied (25000 mPa.s)
Maximum Vacuum time:	Limit time below which a vacuum can be applied (G'G'' crossing)
Optimum Infusion time:	Time to reach 400 mPa.s
Max Infusion Time:	Time to reach 25000 mPa.s
Vacuum cut-off time:	Time to reach G'G'' crossover + 20%

LEGAL NOTES:

Information given in writing or verbally, in the context of our technical assistance and our trials, does not engage our responsibility. Information is 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. We advise users of SICOMIN products to check by some practical trials that they are suitable for the intended processes and applications. The customer's storage, the use, the implementation and the transformation of the supplied products are not under SICOMIN's control and entirely under the sole responsibility of the user.

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 processed 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.