

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)

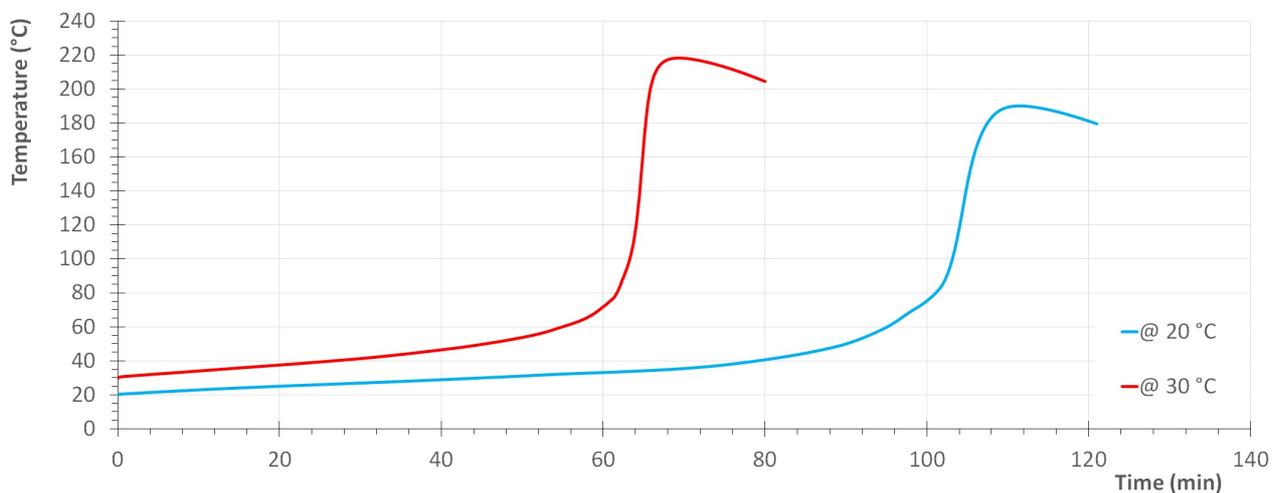
		SD 7160
Appearance		liquid
Color		colourless
Gardner color		≤ 1
Pt/Co Color Index		≤ 50
Reactivity level		Slow
Viscosity (mPa.s)	@ 15 °C	180 ± 30
	@ 20 °C	125 ± 20
	@ 25 °C	90 ± 15
	@ 30 °C	70 ± 10
Density	@ 20 °C	0,9700
Storage (months)	@ Ta	24

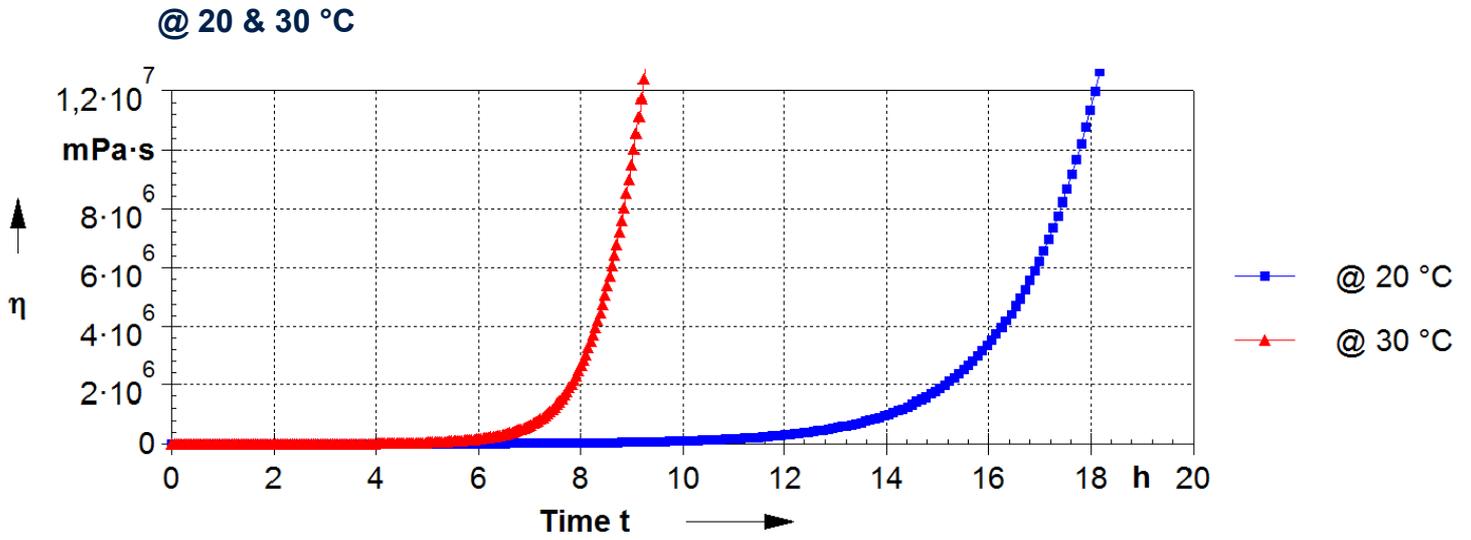
Mixe(s) SR GreenPoxy 51 UVR / SD 7160

		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: 2nd 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%

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