

## SR *GreenCast* 160 / SD 7160 Clear Casting Resin System



**SR *GreenCast* 160** is an epoxy system with enhanced UV resistance, designed for casting of decorative objects, bottle prototypes, jewellery, river tables...

- Very low reactivity allowing high thicknesses up to 10 cm at 20 °C.
- High clarity polymer, colourless and with good brightness.
- Room temperature curing

		<b>SD 7160</b>
Reactivity level		Slow
Initial viscosity (mPa.s)	@ 20 °C	360
	@ 30 °C	250
Pot Life (500 g)	@ 20 °C	01 h 00
	@ 30 °C	40 min
Mixing ratio	By weight	100 / 42
	By volume	100 / 50
Density		1,1307
TG1 max onset	°C	61

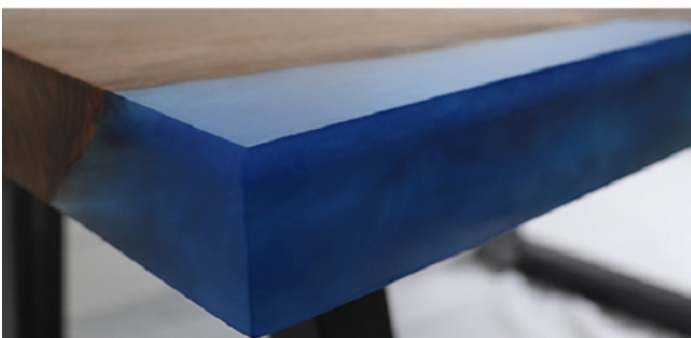
**SR GreenCast 160** resin is out coming from the latest innovations in bio-based chemistry. **SR GreenCast 160** resin is produced with a high content of carbon from plant origin. The bio-based Carbon content of our system is certified by an independent laboratory using Carbon 14 measurements (ASTM D6866 or XP CEN/TS 16640)

This is a significant technological advance on the following points:  
Clarity, color, performance and guaranty of available industrial tonnages.

**SR GreenCast 160** is an epoxy resin which has 37% 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.

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- Very low reactivity allowing high thicknesses up to 10 cm at 20 °C.
- High clarity polymer, colourless and with good brightness.
- Room temperature curing
- Almost odourless.
- 2:1 ratio and very easy mixing.
- Excellent degassing.
- Excellent impact and thermal shock resistance.
- Good UV resistance



## Epoxy resin SR GreenCast 160

Appearance		liquid
Color		colourless
Gardner color		≤ 0
Pt/Co Color Index		≤ 15
Viscosity (mPa.s)	@ 15 °C	2400 ± 480
	@ 20 °C	1300 ± 260
	@ 25 °C	780 ± 160
	@ 30 °C	480 ± 100
	@ 40 °C	210 ± 42
Density	@ 20 °C	1,1700
Refractive index	@ 25 °C	1,5499 ± ,002
Bio-based Carbon content (%)		37
Storage (months)	@ Ta	24

## Hardener(s)

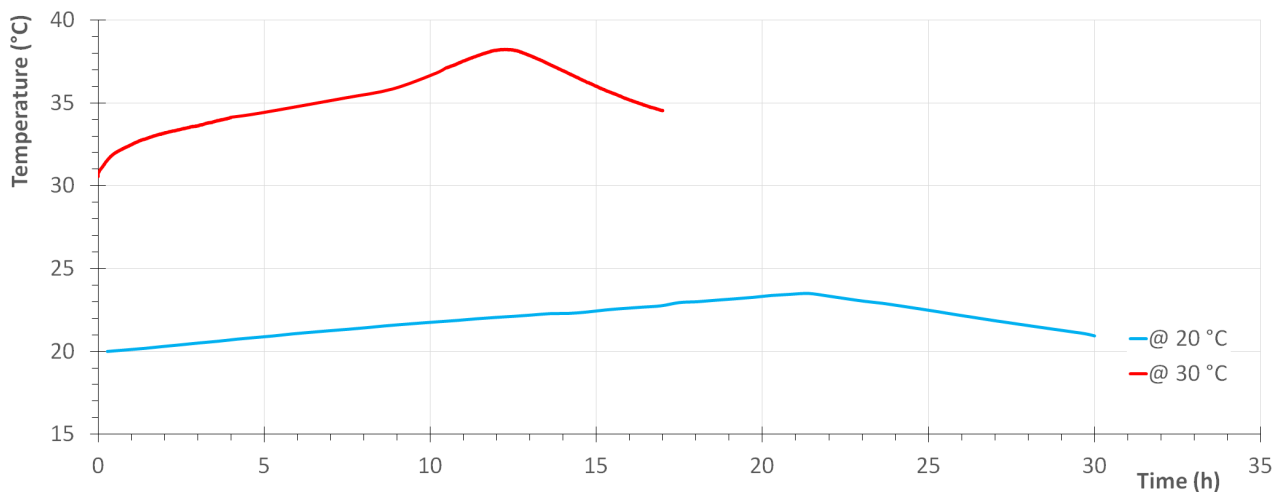
		SD 7160
Appearance		liquid
Color		colourless
Gardner color		≤ 1
Pt/Co Color Index		≤ 50
Reactivity level		Slow
Viscosity (mPa.s)	@ 15 °C	180 ± 30
	@ 20 °C	125 ± 20
	@ 25 °C	90 ± 15
	@ 30 °C	70 ± 10
Density	@ 20 °C	0,9700
Refractive index	@ 25 °C	1,459 ± ,002
Storage (months)	@ Ta	24

## Mixe(s) SR GreenCast 160 / SD 7160

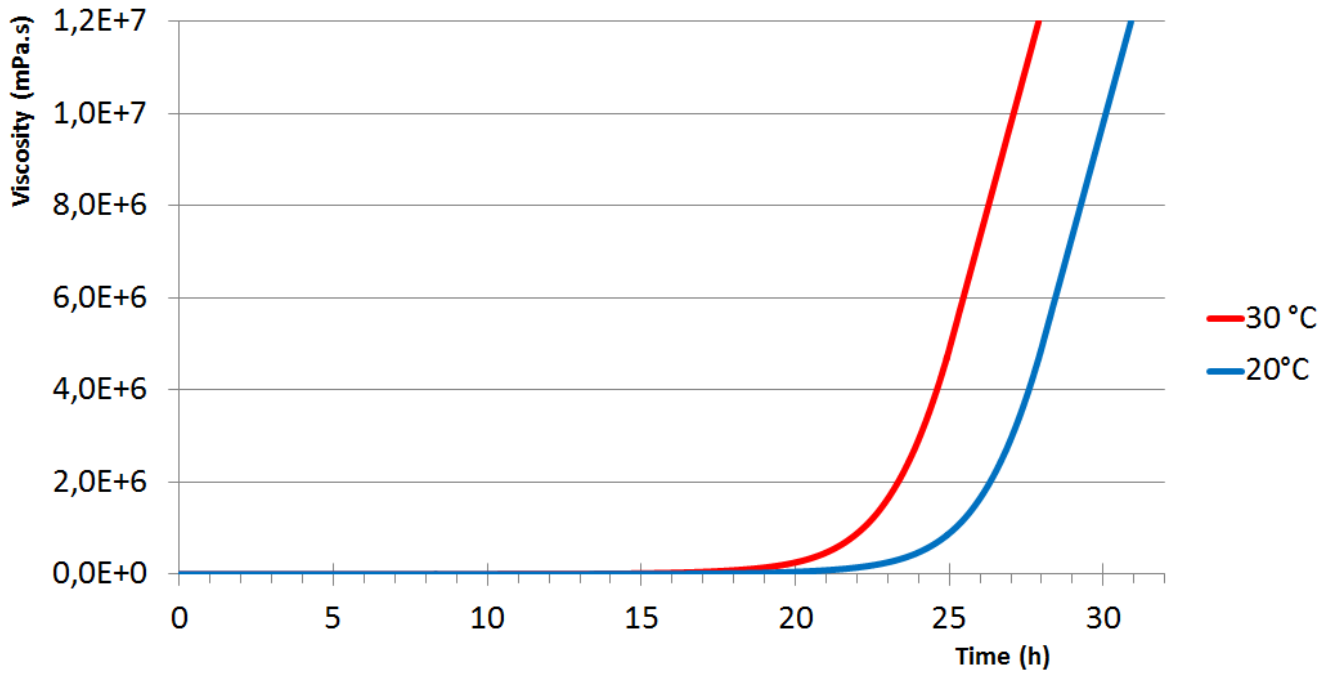
		SD 7160
Appearance		liquid
Color		colourless
Mixing ratio		
	By weight	100 / 42
	By volume	100 / 50
Density	@ 20 °C	1,1307
Initial viscosity (mPa.s)	@ 20 °C	360
PP 50 mm / 10 s <sup>-1</sup>	@ 30 °C	250

## Reactivity for 500 g

	20 °C	30 °C	°C
Exothermic temperature (°C)	23,5	38	
Exothermic peak time	21 h 30	12 h 00	-
Time to reach 50 °C	-	-	-



**Reactivity on a 6 mm thick cast**  
**@ 20 & 30 °C**



## Mechanical properties on cast resin :

		SR GreenCast 160 / SD 7160		
Curing cycles		7 days @ TA	48 h @ TA + 24 h @ 40 °C	48 h @ TA + 16 h @ 60 °C
<b>Tensile</b>				
Modulus	N/mm <sup>2</sup>	620	1 500	2 150
Maximum strength	N/mm <sup>2</sup>	11,5	26	38
Breaking Strength	N/mm <sup>2</sup>			
Elongation at max strength	%	5,9	3,3	3,1
Elongation at break	%	50	27,8	19
<b>Flexion</b>				
Modulus	N/mm <sup>2</sup>	780	1 200	1 940
Maximum strength	N/mm <sup>2</sup>	20	32	59
Breaking Strength	N/mm <sup>2</sup>			
Elongation at max strength	%	6,2	5,5	4,9
Elongation at break	%	15	15	15
<b>Shear</b>				
Breaking Strength	N/mm <sup>2</sup>	17,5	25	30
<b>Compression</b>				
Modulus	N/mm <sup>2</sup>			
Yield strength	N/mm <sup>2</sup>	30	25	65
Offset compression yield	%	12,1	10,8	10,7
<b>Charpy impact strength</b>				
Resilience	kJ/m <sup>2</sup>	84	67	58
<b>DSC glass transition</b>				
TG1 onset	°C	45	50	58
TG1 max onset	°C			61

**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,

**Thermal tests:**

Glass transition DSC:	NF EN ISO 11357-2:2014	-5°C to 180 °C under nitrogen gas
	$T_{G1}$ or Onset:	1 <sup>st</sup> 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 <sup>-1</sup>
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 <sup>-1</sup>
Green Carbone content:	ASTM D6866-16 or XP CEN/TS 16640 Avril 2014	

TA: Ambient temperature (20 to 25 °C)

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