

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

| | | SD 7160 |
|---------------------------|-----------|----------------|
| 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 |

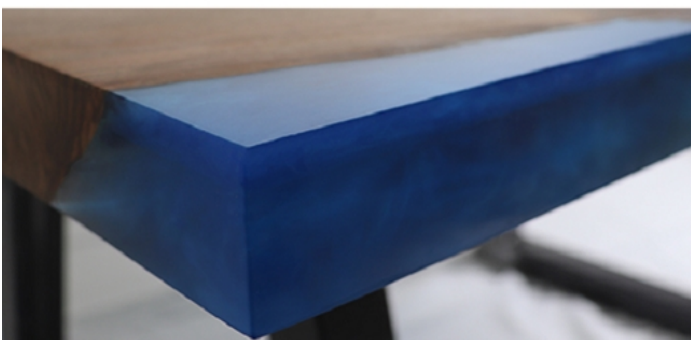
SR GreenCast 160 resin is out coming from the latest innovations in bio-based chemistry. **SR GreenCast 160** resin is produced with a high content of carbon from plant origin. The bio-based Carbon content of our system is certified by an independent laboratory using Carbon 14 measurements (ASTM D6866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

SR GreenCast 160 is an epoxy system with enhanced UV resistance, designed for production by 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
- 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)

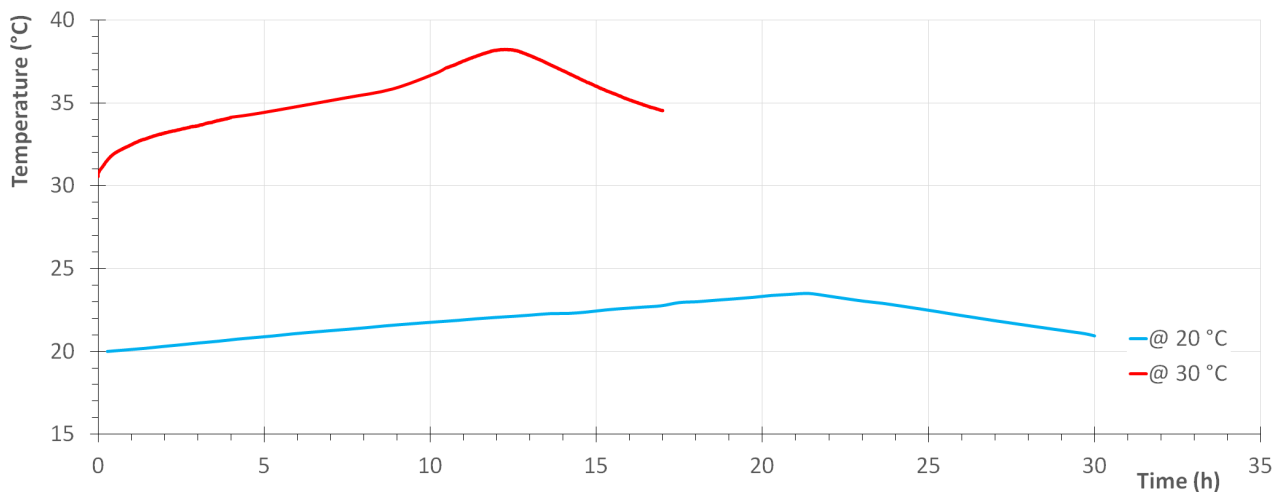
| | | SD 7160 |
|-------------------|---------|--------------|
| Appearance | | liquid |
| Color | | colourless |
| Gardner color | | ≤ 1 |
| Pt/Co Color Index | | ≤ 50 |
| Reactivity level | | Slow |
| Viscosity (mPa.s) | @ 15 °C | 180 ± 30 |
| | @ 20 °C | 125 ± 20 |
| | @ 25 °C | 90 ± 15 |
| | @ 30 °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

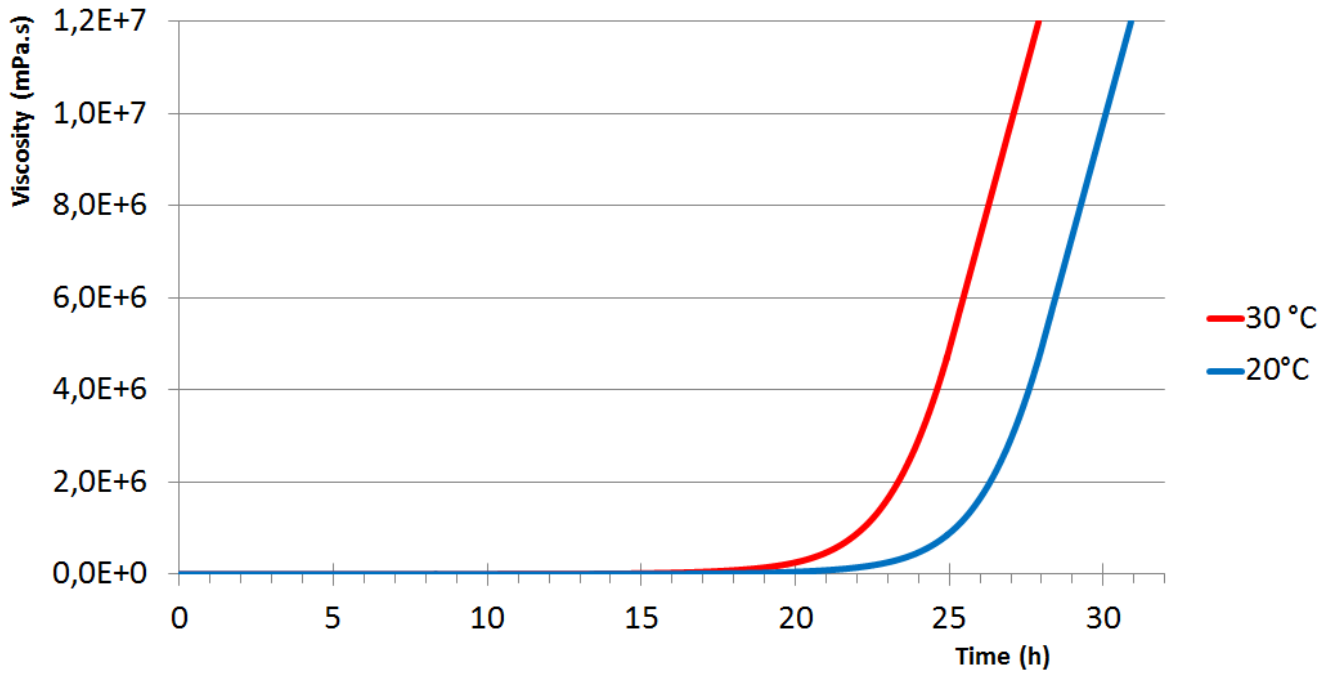
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| Appearance | | liquid |
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| Mixing ratio | | |
| | By weight | 100 / 42 |
| | By volume | 100 / 50 |
| Density | @ 20 °C | 1,1307 |
| Initial viscosity (mPa.s) | @ 20 °C | 360 |
| PP 50 mm / 10 s ⁻¹ | @ 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 |
| Tensile | | | | |
| Modulus | N/mm ² | 620 | 1 500 | 2 150 |
| Maximum strength | N/mm ² | 11,5 | 26 | 38 |
| Breaking Strength | N/mm ² | | | |
| Elongation at max strength | % | 5,9 | 3,3 | 3,1 |
| Elongation at break | % | 50 | 27,8 | 19 |
| Flexion | | | | |
| Modulus | N/mm ² | 780 | 1 200 | 1 940 |
| Maximum strength | N/mm ² | 20 | 32 | 59 |
| Breaking Strength | N/mm ² | | | |
| Elongation at max strength | % | 6,2 | 5,5 | 4,9 |
| Elongation at break | % | 15 | 15 | 15 |
| Shear | | | | |
| Breaking Strength | N/mm ² | 17,5 | 25 | 30 |
| Compression | | | | |
| Modulus | N/mm ² | | | |
| Yield strength | N/mm ² | 30 | 25 | 65 |
| Offset compression yield | % | 12,1 | 10,8 | 10,7 |
| Charpy impact strength | | | | |
| Resilience | kJ/m ² | 84 | 67 | 58 |
| DSC glass transition | | | | |
| 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 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)

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