

SR 1670 / SD 7160

Transparent and colorless casting resin

Epoxy system with UV resistance enhanced, designed for the production by casting decorative objects, bottles prototypes, jewellery, river table...

- Low reactivity allowing castings up to 10 mm thick at 30 °C
- Obtaining a polymer with high clarity, good brightness and colourless.
- Cures at room temperature, if necessary post cure from 40 to 80 °C.
- Almost odourless.
- Excellent impact resistance and thermal shock.
- Good UV resistance

		SD 7160
Reactivity level		Slow
Initial viscosity (mPa.s)	@ 20 °C	600
	@ 30 °C	300
Pot Life (1 kg)	@ 20 °C	08 h 40
	@ 30 °C	02 h 50
Mixing ratio	By weight	100 / 47
	By volume	100 / 50
Density		1,18
TG1 max onset	°C	67
Gel Time	@ 20 °C	31 h 00
	@ 30 °C	16 h 20
Demold time	@ 20 °C	55 h 00
	@ 30 °C	81 h 00

Epoxy system with UV resistance enhanced, designed for the production by casting decorative objects, bottles prototypes, jewellery, river table...

- Low reactivity allowing castings up to 20 mm thick at 20 °C
- Obtaining a polymer with high clarity, good brightness and colourless.
- Cures at room temperature, if necessary post cure from 40 to 80 °C.
- Almost odourless.
- Excellent impact resistance and thermal shock.
- good UV resistance



Epoxy resin SR 1670

Appearance		liquid
Color		purple
Viscosity (mPa.s)	@ 15 °C	2950 ± 550
	@ 20 °C	1600 ± 300
	@ 25 °C	925 ± 175
	@ 30 °C	580 ± 120
Density	@ 20 °C	1,1600
Refractive index	@ 25 °C	1,5524 ± ,002
Storage (months)	@ Ta	24

Hardener(s)

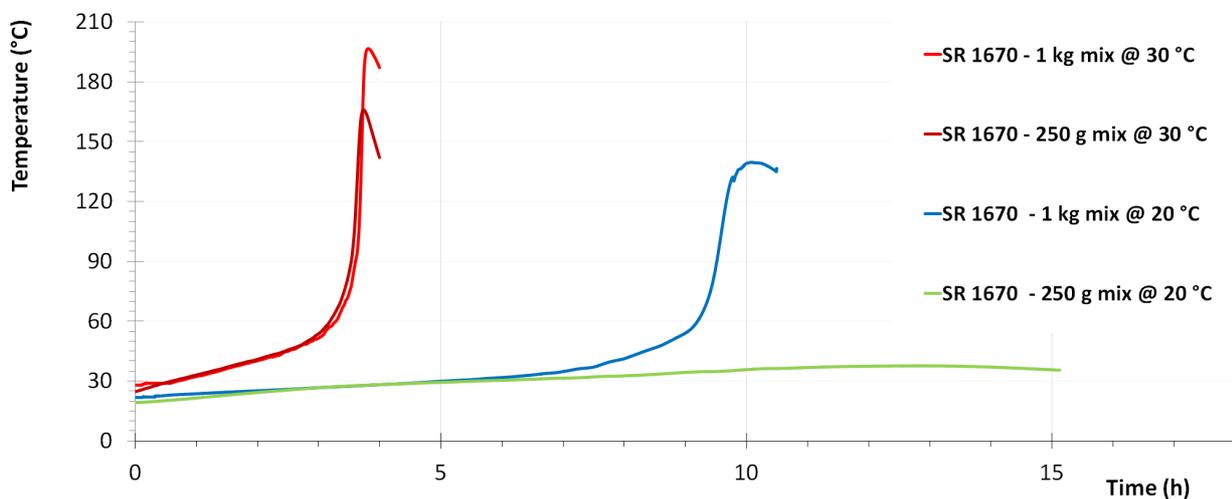
		SD 7160
Appearance		liquid
Color		colourless
Gardner color		≤ 1
Pt/Co Color Index		≤ 50
Reactivity level		Slow
Viscosity (mPa.s)	@ 15 °C	180 ± 30
	@ 20 °C	125 ± 20
	@ 25 °C	90 ± 15
	@ 30 °C	70 ± 10
Density	@ 20 °C	0,9700
Refractive index	@ 25 °C	1,459 ± ,002
Storage (months)	@ Ta	24

Mixe(s) SR 1670 / SD 7160

		SD 7160
Appearance		liquid
Color		colourless
Mixing ratio		
	By weight	100 / 47
	By volume	100 / 50
Density	@ 20 °C	1,18
Initial viscosity (mPa.s)	@ 20 °C	600
PP 50 mm / 10 s ⁻¹	@ 30 °C	300

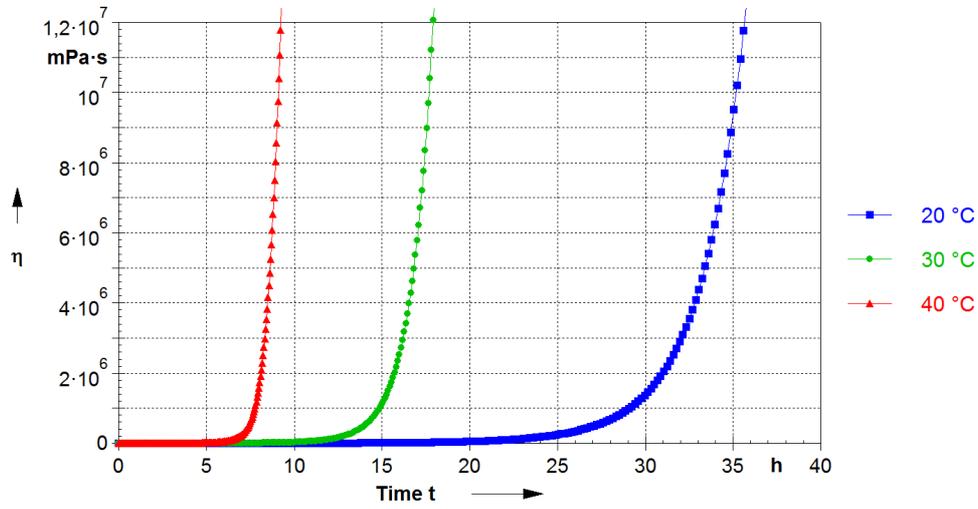
Reactivity for 1 000 g

	20 °C	30 °C	°C
Exothermic temperature (°C)	140	197	
Exothermic peak time	10 h 00	03 h 50	-
Time to reach 50 °C	08 h 40	02 h 50	-



1 mm thick layer reactivity

@ 20, 30 & 40 °C



Mechanical properties on cast resin :

		SR 1670 / SD 7160		
Curing cycles		7 days @ Ta	48 h @ Ta + 24 h @ 40 °C	48 h @ Ta + 24 h @ 60 °C
Tensile				
Modulus	N/mm ²	3 660	3 460	3 100
Maximum strength	N/mm ²	62	60	55
Breaking Strength	N/mm ²	57	56	47
Elongation at max strength	%	2,7	2,8	3,1
Elongation at break	%	3,3	3,5	4,8
Flexion				
Modulus	N/mm ²	3 080	3 070	2 800
Maximum strength	N/mm ²	101	97	93
Breaking Strength	N/mm ²		51	61
Elongation at max strength	%	3,9	3,9	4,7
Elongation at break	%		9,6	11,7
Shear				
Breaking Strength	N/mm ²	39	38	36
Compression				
Modulus	N/mm ²			
Yield strength	N/mm ²	89	85	76
Offset compression yield	%	9,7	9,6	10
Charpy impact strength				
Resilience	kJ/m ²	61	57	59
DSC glass transition				
TG1 onset	°C	54	58	64
TG1 max onset	°C			67
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%

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