SG 715 Blanc ou Noir / SD 802

Can be applied with a brush or a spray gun
Cures at ambient temperature
Good thermal properties after curing: Tg1 max = 90°C (DSC)
Good resistance to abrasion
Recommended for building prototypes and scale models…
Also exists in black

		SD 802
Reactivity level		
Mixing ratio		
	By weight	100 / 27
	By volume	-
Initial viscosity (mPa.s)	20 °C	6 760
	30 °C	5 610
(150)	20 °C	7 min
	30 °C	3 min
Gel Time (1 mm)	20 °C	04 h 30
	30 °C	02 h 50
	20 °C	03h00 - 24h00
	25 °C	02h50 - 24h00
Tg max onset	°C	90
Sandable	20 °C	20 h 00
	25 °C	12 h 00

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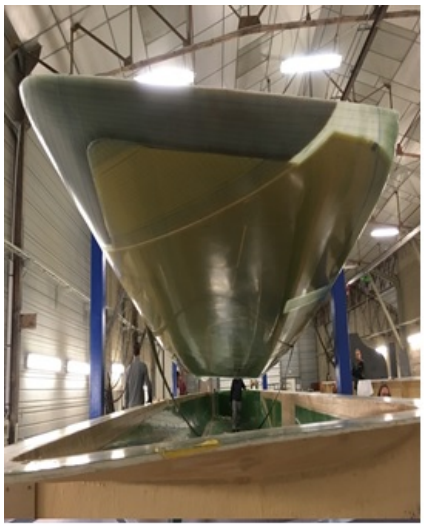


Epoxy resin SG 715 Blanc

Appearance		gel
Color		white
Viscosity (mPa.s)	15 °C	49250 ± 9850
	20 °C	32350 ± 6450
	25 °C	24350 ± 4850
Density	20 °C	1,40
Storage (months)	23 °C	24
Dry extract %		100

Hardener(s)

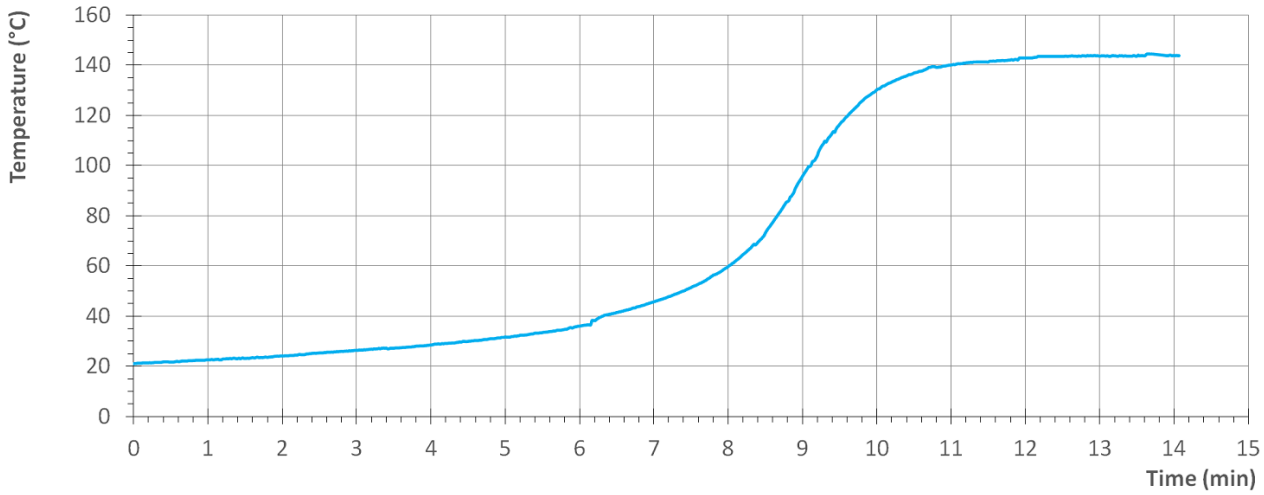
		SD 802
Appearance		liquid
Color		colourless
Gardner color		≤ 1
Reactivity level		
Viscosity (mPa.s)	15 °C	90 ± 18
	20 °C	63 ± 12
	25 °C	45 ± 10
	30 °C	34 ± 6
Density	20 °C	0,96
Storage (months)	23 °C	24
Dry extract %		

Mixe(s) SG 715 Blanc ou Noir / SD 802

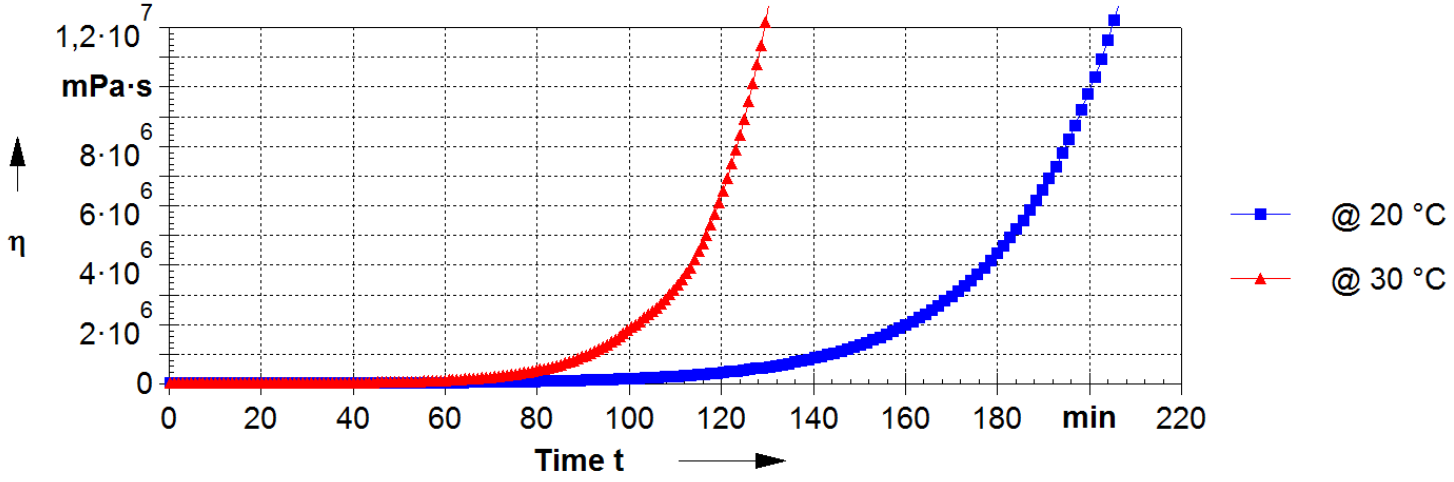
		SD 802
Appearance		gel
Color		white
Mixing ratio		
By weight		100 / 27
By volume		-
Initial viscosity (mPa.s)	20 °C	6 760
	30 °C	5 610
Density	20 °C	1,30
Consumption (g/m²)	(g/m²)	500 à 1250
Spread rate (g/m²)	(m²/kg)	0.8 à 2
Thickness (mm)	(mm)	

Reactivity for 150 g

	20 °C	30 °C
Exothermic temperature (°C)	144	152
Exothermic peak time	12 min	8 min
Time to reach 50 °C	7 min	3 min



20 & 30 °C



Post-curing

The thermomechanical values of an epoxy system can be optimized by implementing a post-curing cycle. The Sicomin laboratory provides several predefined post cure cycles on its data sheets allowing users to compare systems. These experimental cycles are adaptable to your specific applications, taking the following parameters into account:

- Selected epoxy system (Tg max)
- Available heat source
- Room Dimension and Sampling
- Nature of the tooling (thermal conductivity of material)

Many systems can provide good mechanical properties after curing at room temperature and from 18°C for 24 to 48 hours before demolding.
The mechanical properties progress very quickly with a slightly higher temperature of around 40°C for several hours.
Epoxy systems with high Tg and slow and extra-slow hardeners imperatively require post-curing at a higher temperature. It is possible to start the cycle as soon as the exothermic peak passes, but also to start post-curing later after assembly of the various components and before the finishing operations. If the nature of the models and tools is not suitable for high temperatures, we recommend carrying out the first stages up to the maximum admissible temperature then, after cooling and demoulding, continuing the cycle on a suitable former.
For a conventional epoxy system, we recommend carrying out a cycle in steps of 20°C for 4 hours.

Example for an epoxy system Tg max 100°C:
4 hrs at 40°C + 4 hrs at 60°C + 4 hrs at 80°C + cooling to room temperature before unmoulding.

There are many short cycle, high temperature epoxy systems that do not fit into this post-cure scheme (pultrusion, hot press, pre-preg). For these systems, initial curing provides maximum thermomechanical performance without post-curing.

We invite you to contact our technical department for your questions on this subject.

Coating properties :

		SG 715 Blanc / SD 802		
		12 h TA 24 h 40 °C	12 h TA 8 h 60 °C	
DSC glass transition				
Tg onset	°C	70	85	
Tg max onset	°C		90	
Hardness				
Shore D 0-15s		89 / 88	90 / 88	

These curing cycles are applied after a 24-hour hardening period at room temperature, allowing the reaction to freeze and exotherm bevond.

Application

- **Ambient conditions**
  - Temperature: 18 ° C <Substrate temperature <50 ° C
  - Hygrometry <70%.

  High humidity can generate surface pollution harmful to the cohesion of gelcoat / laminate interface.

- **Release agent**

  Check by compatibility **SG 715** with a preliminary test (fish eyes, demoulding capacity ...).
  - **FK 1000 P** : Wax paste
  - **Cirex** : Semi-permanent liquid release agent

- **Recommended post-curing cycles**

  If possible, post-cure in the mold to limit the marking of the fibers.
  - 12 h at 20°C+ 24 h at 40°C
  - **or** 12 h à 20°C+ 8 h at 60°C

- **Roller or brush application**
  - Dilution possible up to 5% by weight of the mixture, i.e. 5 g of EP960 per 100 g of resin + hardener mixture.

- **Spraying**
  - Recommended equipment and parameters:
    - Gravity spraygun
    - Nozzles from 2 to 2.5
    - Pressure from 4 to 6 bars
  - After mixing, leave to mature for 5 minutes before diluting.
  - Dilute the mixture to a maximum of 20% of **EP 960** (depending on the temperature)
  - Apply in continuation, 40 cm from the support, avoiding overloading and spraying the product well to evaporate the diluent as much as possible.
  - Allow the gelcoat to gel before applying a possible second coat or laminating.

He must be tacky (still sticking on his finger) to avoid any risk of delamination.

If the gelcoat cannot be overcoated in time, it is possible to use a shrinking technique. This consists of depositing a fiber adapted to the surface of the amorous gelcoat so that it adheres to the gelcoat while presenting a dry surface which can be wetted by the laminating resin a few hours to a few days later (technique particularly suitable for implemented by infusion).
Contact our services to be advised on the fiber best suited to your application.

- **Cleaning**
  - Thinner EP 960, Methyl ethyl ketone (MEK), solvent for epoxy paints

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:	*1st 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* *ASTM D4065-12*	

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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Mix

SG 715 Blanc	Resin part + Hardener part (kg)	Resin part (kg)	Hardener part (kg)
SD 802			