SG *GreenCoat Incolore* / SD *GreenCoat Incolore Standard*

SG *GreenCoat Incolore* is a clear and transparent gelcoat specially designed for aesthetic parts.

SG *GreenCoat Incolore* has a good UV resistance compared to standard epoxy resin, with 51% of biobased carbon in the resin part and 37% in the final mixture.

		SD Green Coat Incolore Standard
Reactivity level		Standard
Mixing ratio		
	By weight	100 / 48
	By volume	100 / 50
Initial viscosity (mPa.s)	20 °C	110 000
	30 °C	120 000
(150 g)	20 °C	14 min
	30 °C	6 min
Gel Time (1 mm)	20 °C	07 h 00
	30 °C	03 h 30
	20° C	07h00 - 24h00
	30 °C	03h30 - 13h20
Tg max onset	°C	71
Sandable	20° C	12 h 00
	30 °C	06 h 40

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Generally intended for the production of epoxy laminates in open molds, infusion or RTM.
We recommend applying 400 to 500 g/m² of gel coat in the mold and apply the epoxy system as soon as possible.
Fastening is optimized by the use of matt 100 or 200 g/m² in the first layer.

Epoxy resin SG Green Coat Incolore

Appearance		gel
Color		purple
Viscosity (mPa.s)	15 °C	6400 ± 1300
	20 °C	3700 ± 750
	25 °C	2200 ± 450
Density	20 °C	1,17
Storage (months)	23 °C	24
Dry extract %		100

Hardener(s)

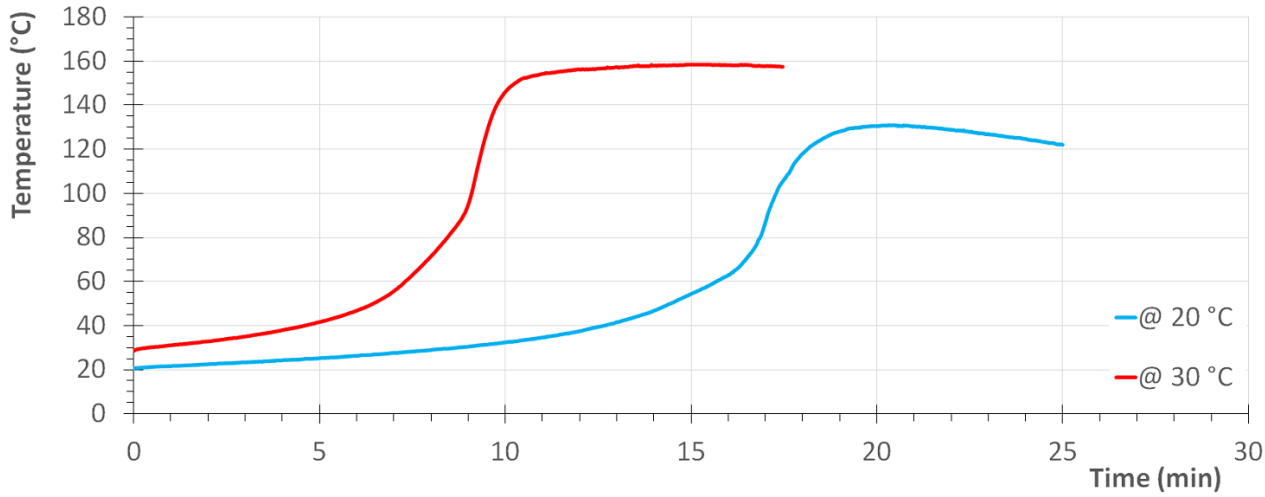
		SD Green Coat Incolore Standard
Appearance		gel
Color		colourless
Reactivity level		Standard
Viscosity (mPa.s)	15 °C	78450 ± 15700
	20 °C	62400 ± 12500
	25 °C	51450 ± 10300
Density	20 °C	1,05
Storage (months)	23 °C	24
Dry extract %		

Mixe(s) SG GreenCoat Incolore / SD GreenCoat Incolore Standard

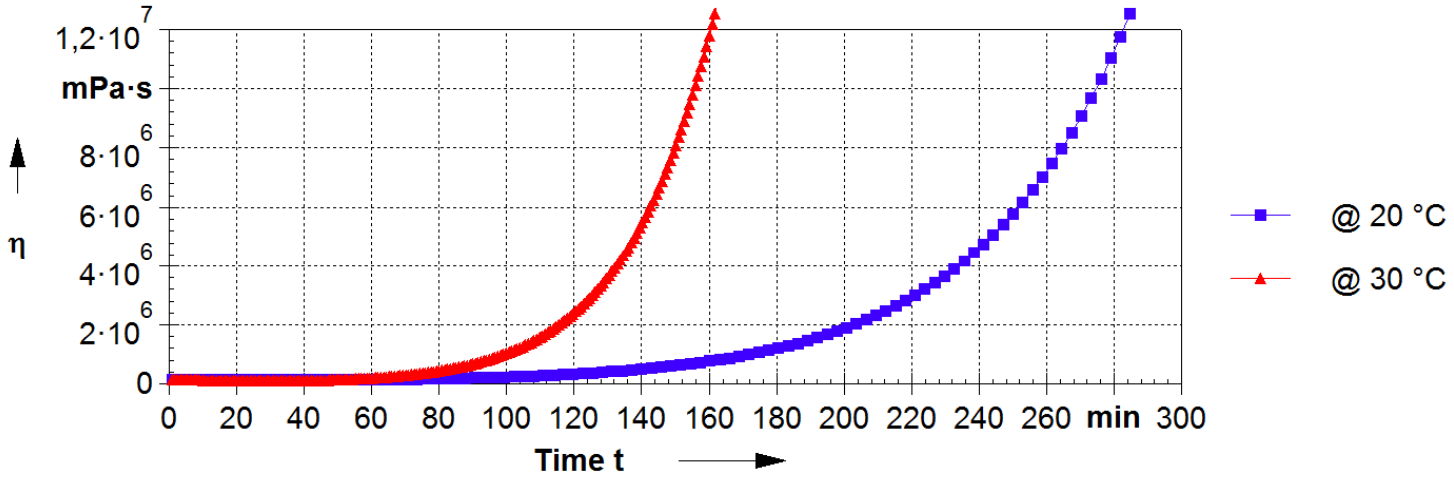
		SD Green Coat Incolore Standard
Appearance		gel
Color		colourless
Mixing ratio		
By weight		100 / 48
By volume		100 / 50
Initial viscosity (mPa.s)	20 °C	110 000
	30 °C	120 000
Density	20 °C	1,16
Consumption (g/m²)	(g/m²)	400 - 500
Spread rate (g/m²)	(m²/kg)	2 - 2,5
Thickness (mm)	(mm)	0,350 - 0,450

Reactivity for 150 g

	20 °C	30 °C
Exothermic temperature (°C)	131	158
Exothermic peak time	20 min	13 min
Time to reach 50 °C	14 min	6 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 Green Coat Incolore / SD Green Coat Incolore Standard		
		24 h TA + 8 h 60°C		
DSC glass transition				
Tg onset	°C	69		
Tg max onset	°C	71		
Hardness				
Shore D 0-15s		88 - 86		

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

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*	
	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%*

LEGAL NOTES:
Information given in writing or verbally, in the context of our technical assistance and our trials, does not engage our responsibility. Information is given in good faith based on SICOMIN's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with SICOMIN's recommendations. We advise users of SICOMIN products to check by some practical trials that they are suitable for the intended processes and applications. The customer's storage, the use, the implementation and the transformation of the supplied products are not under SICOMIN's control and entirely under the sole responsibility of the user.
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If our responsibility should nevertheless be involved, it would be, for all the damages, limited to the value of the goods supplied by us and processed by the customer. We guaranty the non-reproachable quality of our products, in the general context of sales and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

Mix

SG Green Coat Incolore	Resin part + Hardener part (kg)	Resin part (kg)	Hardener part (kg)
SD Green Coat Incolore Standard			