SGi 128 / SD 22X

Intumescent Epoxy Gelcoat

Epoxy gel coat system **SGi 128 / SD 228**:

- is a fire resistant epoxy gel coat system, halogen free and flame retardant
- has a low smokes opacity and toxicity.
- require post curing in the mould before the part's release.

This system allows getting:

- RAILWAY standard EN45545-2 : R6 HL1, HL2
- BUILDING & CONSTRUCTION standard ASTM E84-15b : Class A
- BUILDING & CONSTRUCTION standard EN 13501 : EUROCLASS B- S1- d0

SICOMIN Composites 31, avenue. de la Lardière BP 23 13161 Châteauneuf-les-Martigues Cedex – France
Tel : +33 (0)4 42 42 30 20 Fax : +33 (0)4 42 81 29 29 E mail : composites@sicomin.com web : www.sicomin.com

Epoxy resin SGi 128

Appearance		gel
Color		white
Viscosity (mPa.s)	@ 15 °C	18500 ± 3700
	@ 20 °C	12200 ± 2500
	@ 25 °C	8570 ± 1800
	@ 30 °C	6330 ± 1300
	@ 40 °C	3850 ± 800
Density	@ 20 °C	1,2700
Storage (months)	@ Ta	24
Dry extract %		100

Hardener(s)

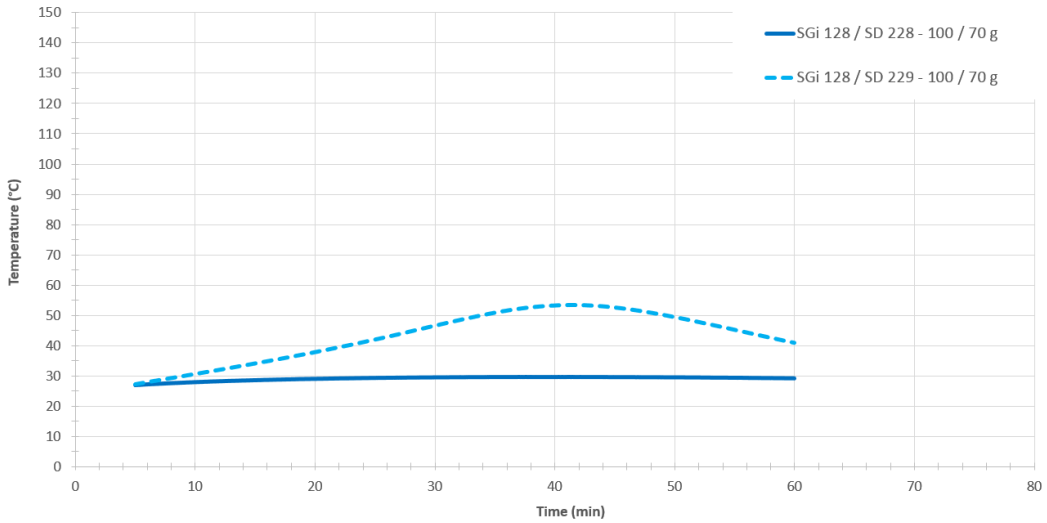
		SD 229	SD 228
Appearance		gel	gel
Color		white	white
Reactivity level		Fast	Standard
Viscosity (mPa.s)	@ 15 °C	214500 ± 70800	9305 ± 3055
	@ 20 °C	126500 ± 42000	6410 ± 2110
	@ 25 °C	76950 ± 25400	4690 ± 1540
	@ 30 °C	48700 ± 15500	
	@ 40 °C	22400 ± 7200	
Density	@ 20 °C	1,4502	1,4124
Storage (months)	@ Ta	18	18
Dry extract %		100	100

Mixe(s) SGi 128 / SD 22X

		SD 229	SD 228
Appearance		gel	gel
Color		white	grey
Mixing ratio			
	By weight	100 / 70	100 / 70
	By volume	100 /	100 /
Initial viscosity	@ 20 °C	43300	16000
PP 50 mm / 10 s^{-1} (mPa.s)	@ 30 °C	20200	6600
Density	@ 20 °C	1,4019	1,4478
Consumption (g/m²)	@ 25 °C	750 - 1000	750 - 1000
Spread rate (g/m²)	@ 25 °C	1 - 1,3	1 - 1,3
Thickness (mm)	@ 25 °C	0,550 - 0,700	0,550 - 0,700

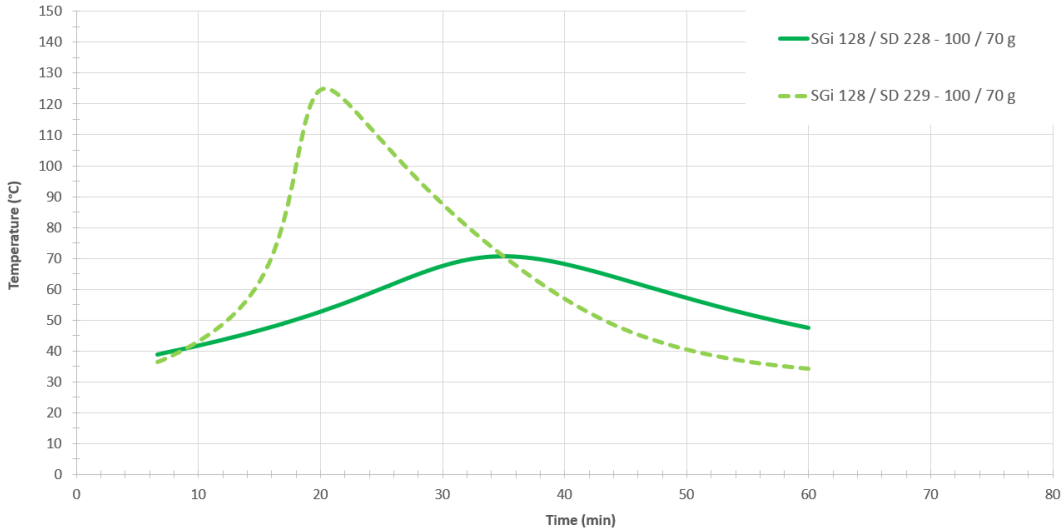
Reactivity @ 20 °C on 150 g SGi 128 / SD 22X

	SD 229	SD 228
Exothermic temperature (°C)	53	30
Time to reach exothermic peak	38	31
Time to reach 50 °C (min)	33	0



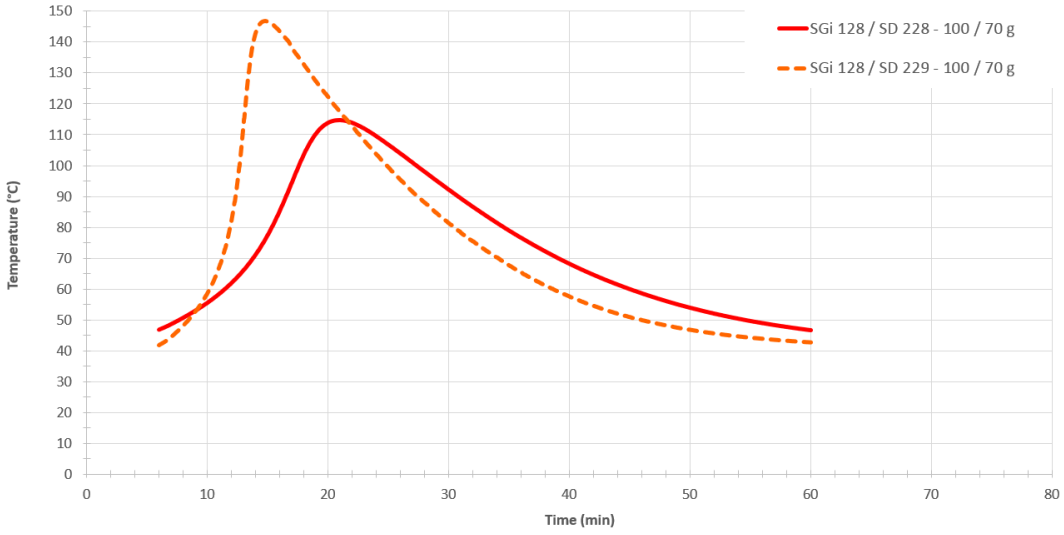
Reactivity @ 30 °C on 150 g SGi 128 / SD 22X

	SD 229	SD 228
Exothermic temperature (°C)	125	71
Time to reach exothermic peak	20	34
Time to reach 50 °C (min)	12	18



Reactivity @ 40 °C on 150 g SGi 128 / SD 22X

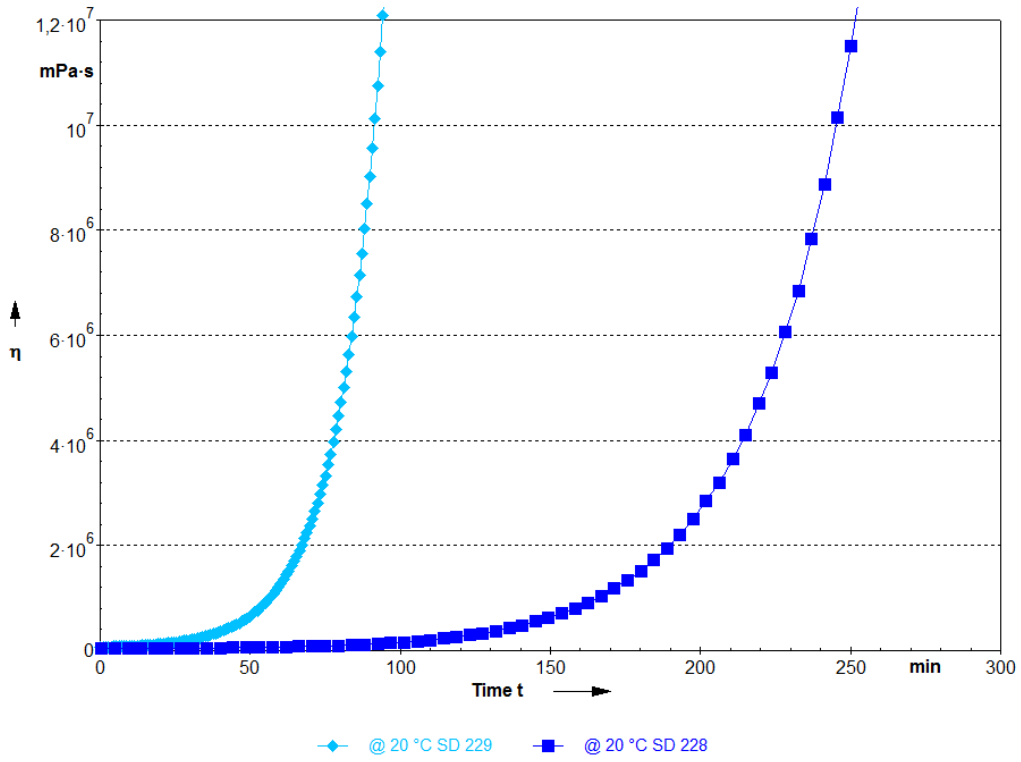
	SD 229	SD 228
Exothermic temperature (°C)	147	115
Time to reach exothermic peak (min)	15	20
Time to reach 50 °C (min)	8	7



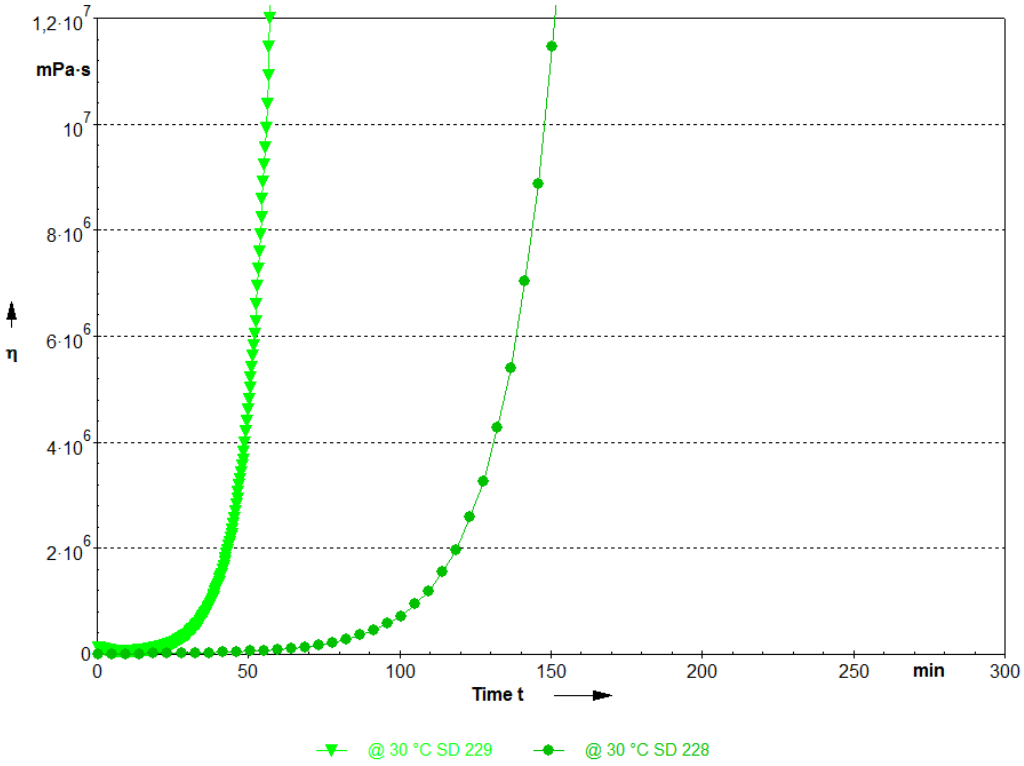
Reactivity on 1 mm thick layer

	SGi 128 / SD 229		SGi 128 / SD 228	
Substract temperature	20 °C	25 °C	20 °C	25 °C
Open time	NC	30 min	NC	1 h
Overcoating	NC	1 h	NC	2 h
Dust-free	NC	1 h 30	NC	3 h
Gel time G'G"	2 h 00	1 h 45	6 h	4 h 30
Hard to the touch	NC	3 h 00	NC	8 h 00
Sandable	NC	NC	NC	NC

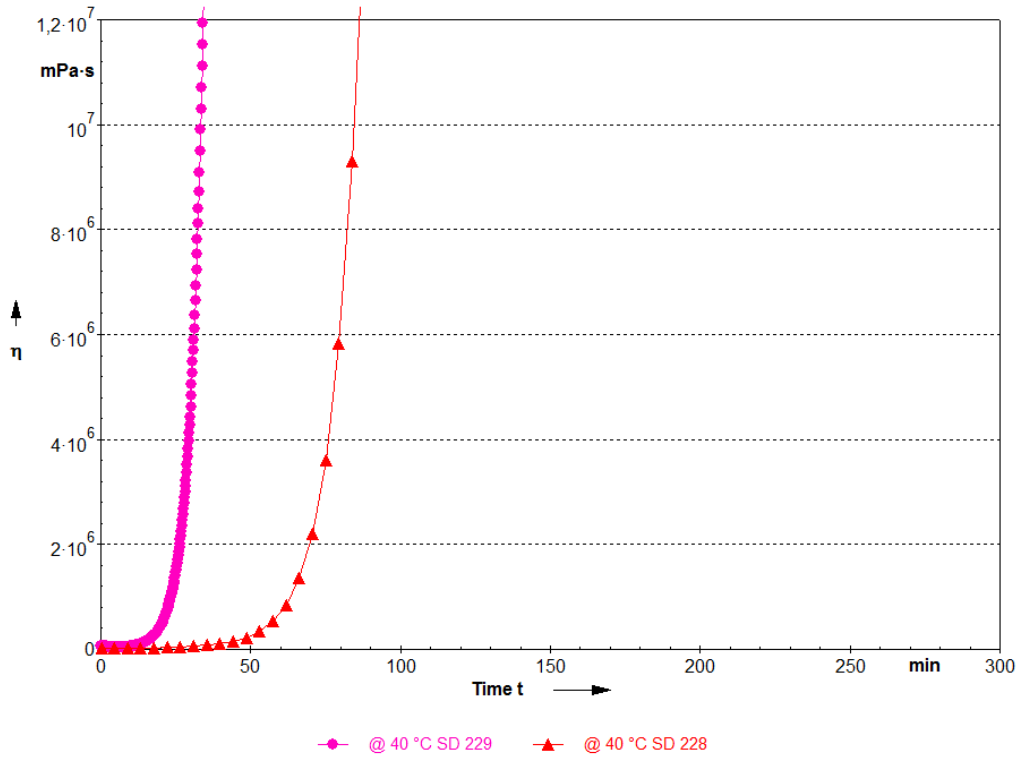
@ 20 °C



@ 30 °C


1,2·10^7
mPa·s
10^7
8·10^6
6·10^6
4·10^6
2·10^6
0
η
0
50
100
150
200
250
min
300
Time t
@ 30 °C SD 229
@ 30 °C SD 228

@ 40 °C


1,2·10^7
mPa·s
10^7
8·10^6
6·10^6
4·10^6
2·10^6
0
η
0
50
100
150
200
250
min
300
Time t
@ 40 °C SD 229
@ 40 °C SD 228

Coating properties :

		SGi 128 / SD 229			SGi 128 / SD 228		
Curing cycles →		24h @ 25°C + 16h @ 60° C			24h @ 25°C + 16h @ 60° C		
DSC glass transition							
TG1 onset	°C	77			73		
TG1 max onset	°C	79			73		
Hardness							
Shore D 0-15s							

SICOMIN Composites 31, avenue. de la Lardière BP 23 13161 Châteauneuf-les-Martigues Cedex – France
Tel : +33 (0)4 42 42 30 20 Fax : +33 (0)4 42 81 29 29 E mail : composites@sicomin.com web : www.sicomin.com

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:	*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)*	

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.

SICOMIN reserves the right to change the properties of its products. All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data and tolerance may vary due to circumstances beyond our control.

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.