

SGi 128 / SD 228

Fire resistant epoxy gel coat

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

The approvals are detailed on the last page of this technical data sheet.

Epoxy resin SGi 128

Appearance / Colour		White gel
Storage stability		2 years @ 20 °C Stir thoroughly before use
Viscosity (mPa.s)	@ 15 °C	18 500 ± 3 700
Rheometer	@ 20 °C	12 200 ± 2 500
CP 50 mm	@ 25 °C	8 570 ± 1 800
Shear rate 10 s ⁻¹	@ 30 °C	6 330 ± 1 300
	@ 40 °C	3 850 ± 800
Density		
Pycnometer	@ 20 °C	1,27 ± 0,01
ISO 2811-1		
Refractive Index	@ 25°C	1,5437 ± 0,0005

Hardeners SD 228

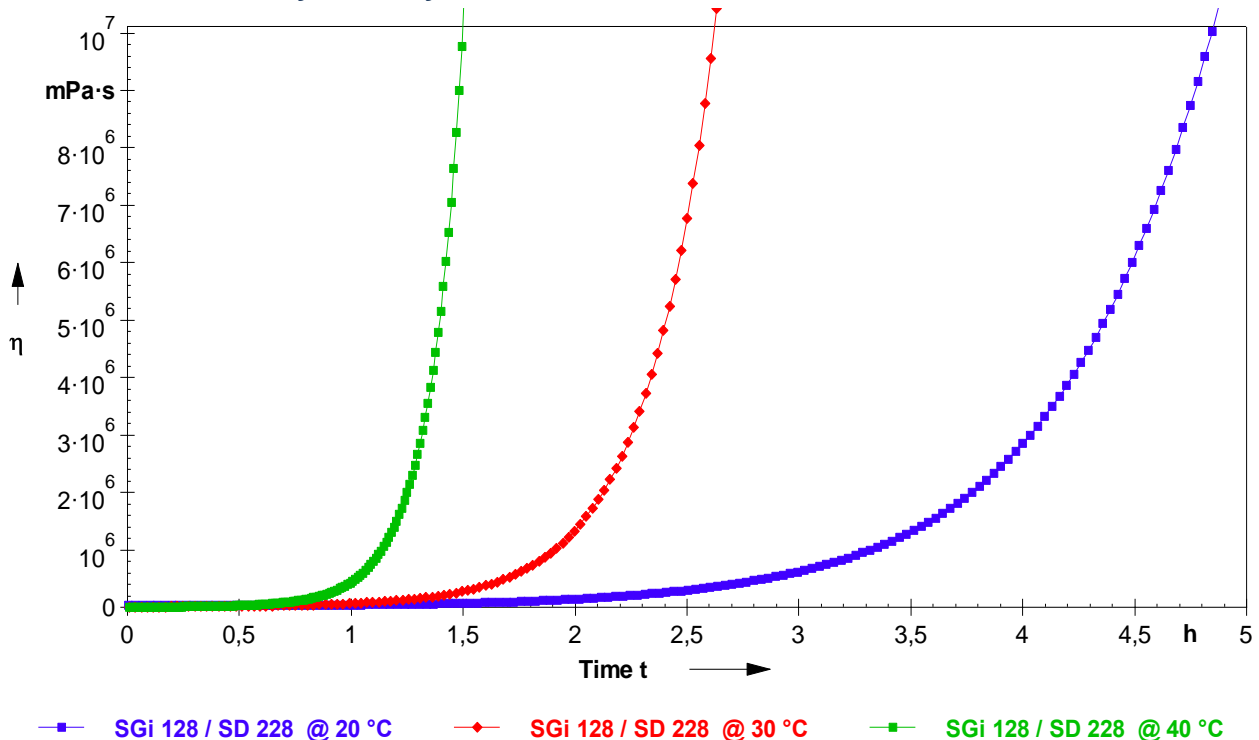
Appearance / Colour		White gel
Storage stability		1 years @ 20 °C Stir thoroughly before use
Viscosity (mPa.s)	@ 15 °C	9 760 ± 2 000
Rheometer	@ 20 °C	6 600 ± 1 500
CP 50 mm	@ 25 °C	4 750 ± 1 000
Shear rate 10 s ⁻¹	@ 30 °C	3 580 ± 800
	@ 40 °C	2 290 ± 500
Density		
Helium Pycnometer	@ 20 °C	1,41 ± 0,01
Refractive Index	@ 25°C	1,5368 ± 0,0005

Blends Epoxy gel coat SGi 128 / SD 228

Appearance uncured		White gel
Mixing ratio by weight		100 / 70
Viscosity (mPa.s)		
Rheometer	@ 20 °C	13 000
CP 50 mm	@ 30 °C	6 700
Shear rate 10 s ⁻¹	@ 40 °C	4 200
Consumption	@ 25 °C	750 to 1 000 g/m ²
(coating thickness 550 to 750 µm)		

Reactivity

Increase of viscosity on a layer of 1 mm film thick @ 20, 30, 40 °C



Gel time on a layer of 1 mm thick

Temperature	20 °C	30 °C	40 °C
Gel Time	6 h 40 min	3 h 30 min	1 h 50 min

Glass Transition Temperature on cast resin

		SGi 128 / SD 228
Curing schedule		24 h @ 25 °C 16 h @ 60 °C
DSC		
T _{G1} onset	°C	73
T _{G2} max	°C	73

Tests carried out on samples of pure cast resin, without prior degassing, between steel plates.
Measures undertaken according to the following norms:

Tensile: ISO 527-2
Flexion: ISO 178
Compression: ISO 604
Shear: ASTM D732-93
Charpy impact strength: NF T 51-035
DSC glass transition: ISO 11377-2:1999 -5°C to 180°C under nitrogen gas

T_{G1} or Onset: 1st run at 20 °C/min
T_{G1} maximum or Onset: 2nd run at 20 °C/min
Temperature ramp 0°C to 180 °C @ 2°C/min
Temperature ramp 0°C to 180 °C @ 2°C/min

Glass transition DTMA: ISO 11357-1 - T_G onset G'
ASTM D4065 - T_G peak G''
Density: ISO 2811-1
Viscosity: ISO 3219 - Rheometer - CP 50 mm - Shear rate 10 s-1
Gel time: Crossing of the G'G' curves method
GreenCarbon content: ASTM D6866 or XP CEN/TS 16640 Avril 2014

Fire Resistance Certifications

Standards	EN 45545-2 March 2013	ASTM E84-15b
Sector	Railway	Building & Construction
Laboratory	LNE– France	Thomas Bell-Wright International consultant – U.A.E.
Test / report:	Orientation Results	PE074 REV 1
Samples	SGi 128 / SD 228 : 0,7 mm Substrate material : 2 QX Glass 1,5 kg/m ² + SR 1124/SD 4771	SGi 128 / SD 228 : 0,75 mm Substrate material : 200 gsm verranne 6 QE 1000 Glass + SR 1125 Th / SZ 8513
Classification	R6 : HL1, HL2	FSI 20 SDI 160 CLASS A

Conditions of Application

18 °C < Temperature of substrate < 50°C Hygrometry < 70%

Release Agent

Try first the compatibility of **SGi 128 / SD 228** with the release agent (fish eyes, release properties after post cure).

Recommended release agent: Cirex Si 041 WB, solvent free.

Application

Use a stirrer with high shear to homogenize the coating prior to use without filtering.

Respect the mixing ratio Gel / Hardener accurately

Mix the two components; wipe the edge and the bottom of the pot while mixing.

Prepare the quantity applicable in less than 15 minutes.

With a brush or roll, do not dilute, **SGi 128** is slightly self-levelling.

Spray gun use is not recommended.

Laminating

The lamination can start when the gel is still tacky or later if the gel has been overlaid by a Verrane layer in order to create a mechanical key.

Mechanical Key

A mechanical key is a verrane layer, applied onto the gelcoat when it is still wet but starting to set. The purpose is to have half of the fabric wet by **SGi 128**, the other half is wet by the resin system. Use a clean, dry foam roller to apply gently the fabric on **SGi 128**.