

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

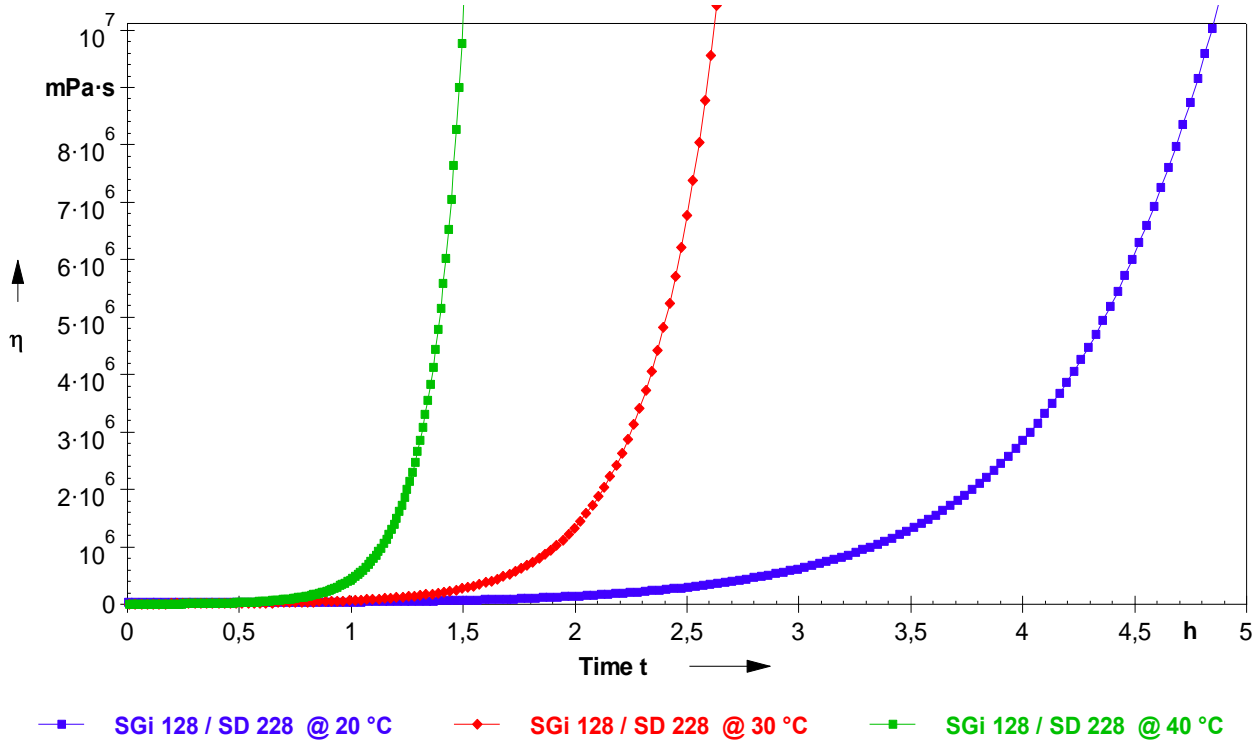
Appearance / Colour		White gel
Storage stability		1 years @ 20 °C Stir thoroughly before use
Viscosity (mPa.s)	@ 15 °C	9 760 ± 2 000
Rheometer	@ 20 °C	6 600 ± 1 500
CP 50 mm	@ 25 °C	4 750 ± 1 000
Shear rate 10 s ⁻¹	@ 30 °C	3 580 ± 800
	@ 40 °C	2 290 ± 500
Density		
Helium Pycnometer	@ 20 °C	1,41 ± 0,01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

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

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

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.

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.

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**.