SR 1121 / SD 477x

Hand laminating Fire Retardant Epoxy system

- Low viscosity, good wetting-out properties.
- Halogen free fire retardant system
- Low smoke opacity and toxicity.
- High fire resistance with **SC FW16** coating (ASTM E84 class A) or **SGi 128** epoxy gel-coat.

Guidelines

- No filtering
- Use a stirrer with high shear to homogenize resin part prior to use

Fire resistant Epoxy resin SR 1121

Appearance		White viscous liquid
Storage stability		2 years @ 20 °C Stir thoroughly before use
Viscosity (mPa.s) Rheometer CP 50 mm Shear rate 10 s^{-1}	@ 15 °C @ 20 °C @ 25 °C @ 30 °C @ 40 °C	22 500 ± 4 500 11 000 ± 2 200 5 900 ± 1 200 3 500 ± 700 1 550 ± 310
Density Pycnometer (ISO 2811-1)	@ 20 °C	1,40 ± 0,02

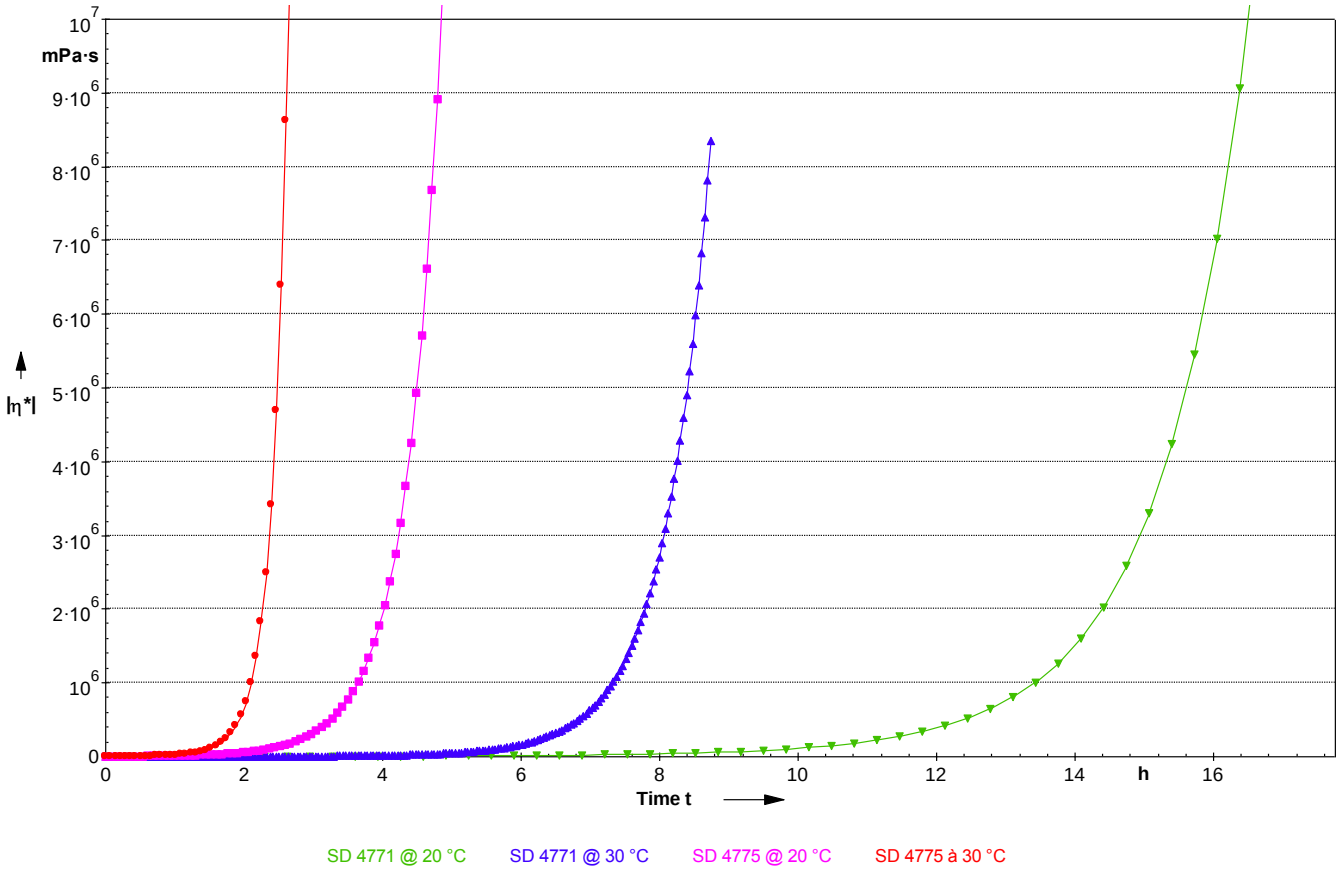
Hardeners SD 477x :

		SD 4775	SD 4771
Aspect / color		Clear Liquid	Clear to red Liquid
Gardner ASTM D1544 Disc 4/30		5 maximum	12 maximum
Reactivity levels		Medium	Ultra-slow
Viscosity (mPa.s) Rheometer CP 50 mm Shear rate 10 s^{-1}	@ 15 °C @ 20 °C @ 25 °C @ 30 °C @ 40 °C	285 ± 60 190 ± 40 130 ± 30 95 ± 20 55 ± 10	13 ± 3 11 ± 2,5 9 ± 2 7 ± 1,5 1,5 ± 1
Density Pycnometer (ISO 2811-1)	@ 20 °C	1,01 ± 0,01	0,95 ± 0,01

Blends Epoxy SR 1121 / SD 477x

		SR 1121 / SD 4775	SR 1121 / SD 4771
Appearance uncured		Whitish liquid	Whitish liquid
Mixing ratio		**100 / 16 by weight** **4 / 1 by volume**	
Viscosity (mPa.s) Rheometer CP 50 mm Shear rate 10 s^{-1}	@ 20 °C @ 30 °C	3 750 ± 750 1 325 ± 265	1 290 ± 250 470 ± 100
Density	@ 20 °C	1,36 ± 0,02	1,35 ± 0,02

Increase of viscosity on 1 mm film @ 20 and 30 °C



Mechanical properties on cast resin

		SR 1121 / SD 4775		SR 1121 / SD 4771	
Curing schedule	Unit	8 h @ 23 °C 16 h @ 60 °C	8 h @ 23 °C 4 h @ 60 °C 4 h @ 80 °C	8 h @ 23 °C 16 h @ 60 °C	8 h @ 23 °C 4 h @ 60 °C 4 h @ 80 °C
Tensile					
Modulus of elasticity	N/mm^2	4 700	5 000	5 000	6 140
Maximum strength	N/mm^2	47	49	45	40
Strength at break	N/mm^2	47	49	45	39
Deformation at max load	%	1,5	1,7	1,7	1,1
Deformation at break	%	1,5	1,7	1,7	1,1
Flexion					
Modulus of elasticity	N/mm^2	5 070	5 040	5 020	4 350
Maximum strength	N/mm^2	83	88	81	94
Strength at break	N/mm^2	83	88	81	94
Deformation at max load	%	2,0	2,1	2,0	2,6
Deformation at break	%	2,0	2,1	2,0	2,6
Compression					
Maximum strength	N/mm^2	112	112	105	106
Deformation at max load	%	12	15,5	12	12
Shear					
Maximum strength	N/mm^2	49	49	46	48
Charpy impact strength					
Resilience	kJ/m^2	13	16	11	16
Glass transition					
DSC - T_{G1} onset/ T_{Gmax}	°C	79 / 83	86 / 85	80 / 82	80 / 83
DTMA - T_G onset (Teig)	°C	78	85	69	81
DTMA - T_G tan δ	°C	89,5	101	89	94

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

Tension:	*ISO 527 - 2*
Flexion:	*ISO 178*
Charpy impact strength:	*NF T 51-035*
Shear Strength:	*ASTM D 732 - 93*
Compression:	*ISO 604*
Water absorption:	*Internal. Polymerization according to cycle, machining, weighing, time spent in distilled water at 70 °C / 48 hours, weighing 1 hour after emerging,*

Glass transition DSC:	*ISO 11357-2: 1999 -5°C to 180 °C under nitrogen gas*	
	T_{G1} or Onset: 1st point at 20 °C/min	*T_{G1} maximum or Onset: second passage*
Glass transition DTMA:	*ISO 11357-1 - T_G onset G'*	*Temperature ramp 0 °C to 180 °C @ 2°C/min*
	ASTM D4065 - T_G peak G"	

Physical tests according standard:

Gardner color:	*NF EN ISO 4630*	*Visual method*
Refractive index:	*NF ISO 280*	
Viscosity:	*NF EN ISO 3219*	*Rheometer 50 mm, shear 10 s^{-1}*
Density:	*NF EN ISO 2811-1*	*Pycnometer*
Gel time:	*Cross G' G"*	*Rheometer CP50 - Shear rate 10 s^{-1}*
Green Carbone content:	*ASTM D6866 or XP CEN/TS 16640 Avril 2014*	

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