SR 8100

Epoxy system for Injection and Infusion

The **SR 8100** is a two component epoxy system. It has been specially formulated for resin transfer processes, such as injection or infusion.
This system has a very low viscosity at ambient temperature.
The different hardeners allow the moulding of small to very large parts.
The cured system gives a temperature resistance up to 80°C (Tg onset)
The hardeners SD 4770 and 4771 are designed for very thick fibers laminates

Epoxy resin SR 8100

Aspect / colour		Yellow liquid
Viscosity (mPa.s)	@ 15 °C @ 20 °C @ 25 °C @ 30 °C @ 40 °C	2370 ± 480 1320 ± 260 785 ± 155 490 ± 100 220 ± 45
Density (g/cm^3)	@ 20 °C	1.158
Storage stability	Ambiant	24 Months

Hardeners SD 8822 SD 477x

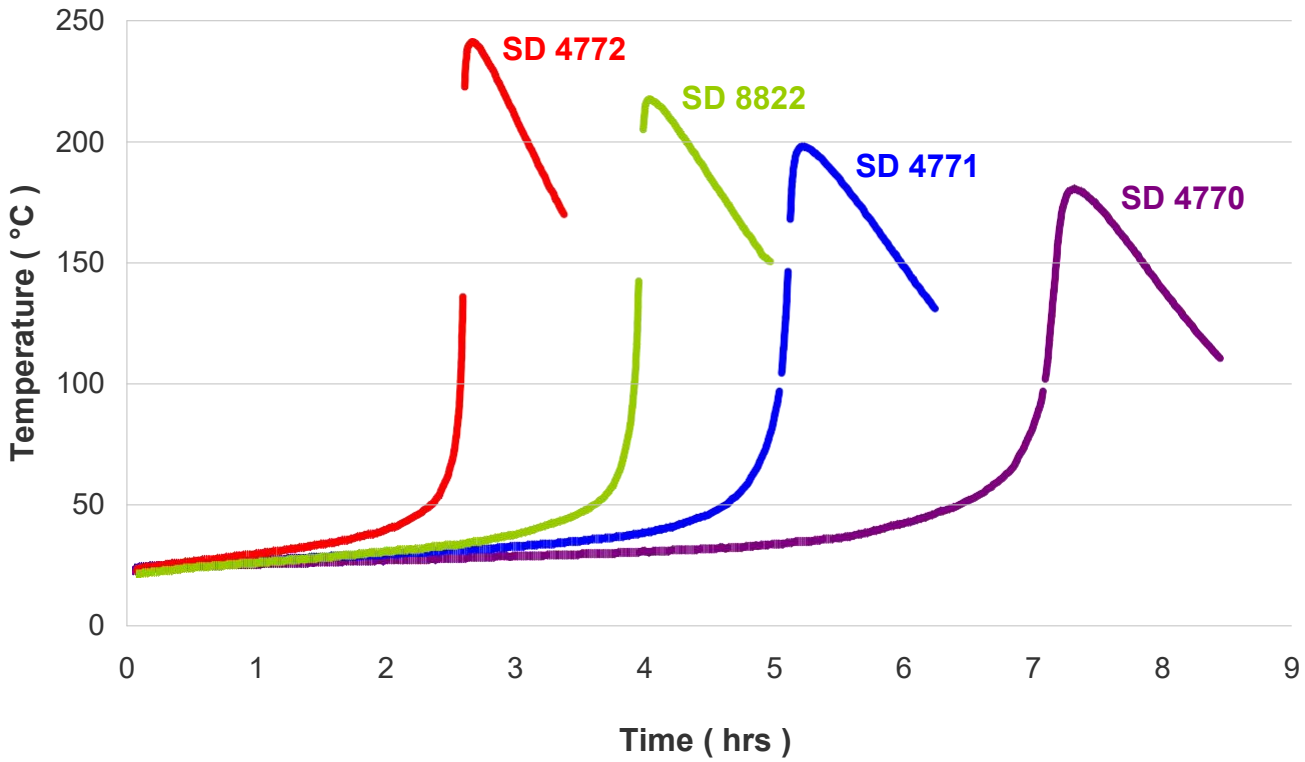
Reference Reactivity type		SD 8822 "slow"	SD 4772 Slow	SD 4771 Ultra slow	SD 4770 Mega slow
Aspect / colour		Light yellow liquid	Light yellow liquid		
Color Gardner		5 maximum	3 maximum		
Viscosity (mPa.s)	@ 15 °C	27 ± 5	13 ± 3		
	@ 20 °C	20 ± 5	11 ± 2		
	@ 25 °C	16 ± 5	9 ± 2		
	@ 30 °C	13 ± 5	7 ± 1.5		
	@ 40 °C	9 ± 5	5 ± 1		
Storage stability	15 to 25 °C	24 months Hardeners react with carbon dioxide and moisture. Keep tightly closed packaging, minimize maximum contact with the air.			
Density (g/cm^3)	@ 20 °C	0.935	0.927	0.944	0.944

SR 8100 / SD 8822 SD 477x Mixes

Reference		**SR 8100 / SD 8822**	**SR 8100 / SD 4472**	**SR 8100 / SD 4471**	**SR 8100 / SD4770**
Mixing ratio by weight		**100 g / 31 g**	**100 g / 29 g**		
Mixing ratio by volume		**100 ml / 39 ml**	**100ml / 36 ml**		
Initial viscosities	@ 20 °C	390	330	400	300
	@ 30 °C	250	150	160	145

Reactivity on 500 gr mix @ 20 °C

	SR 8100 / SD 8822	SR 8100 / SD 4772	SR 8100 / SD 4771	SR 8100 / SD 4770
Exothermic temperature (°C)	220	240	200	180
Time to reach the exothermic peak	4 hrs	3 hrs 45’	5 hrs 15’	7 hrs 20’
Time to reach 50 °C	3 hrs 40’	2 h 20’	4 hrs 40’	6 hrs 30’

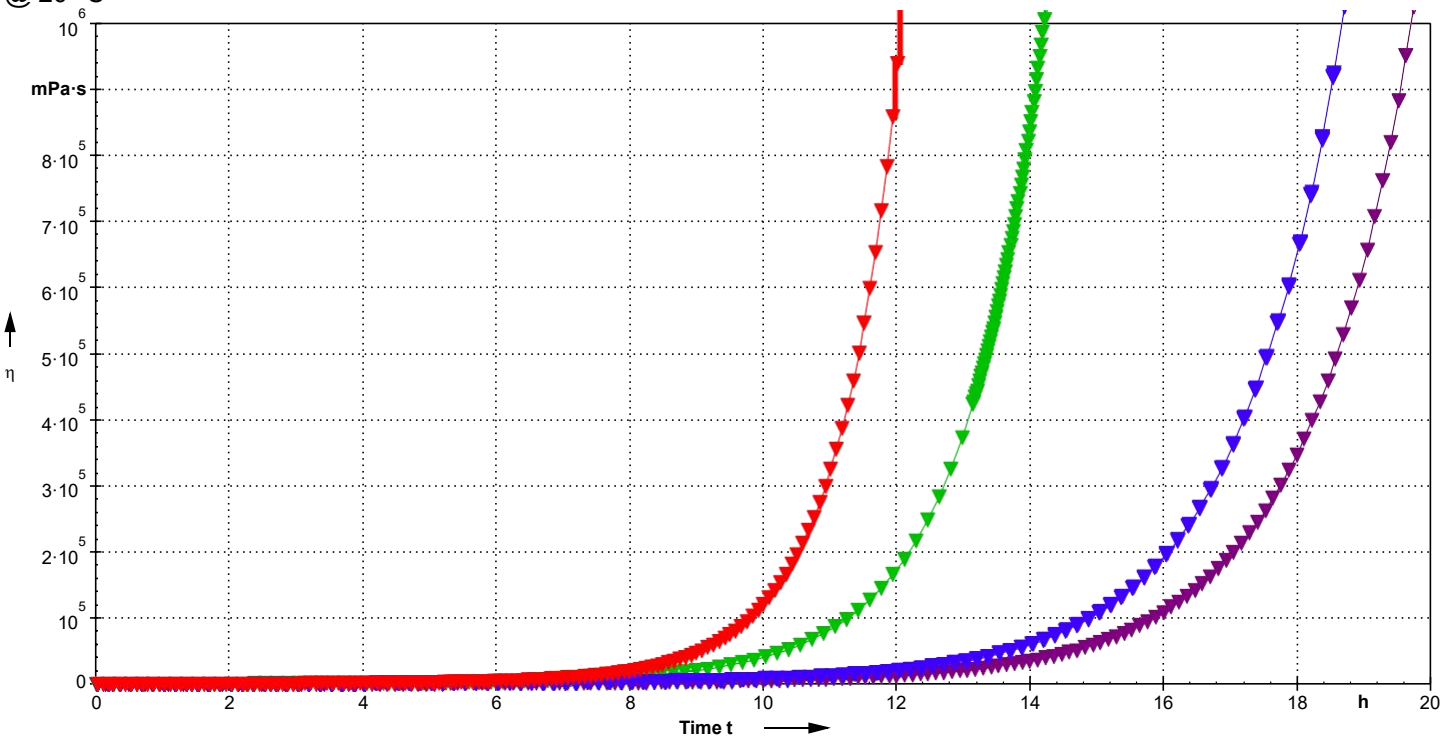


Physical tests according standard ::

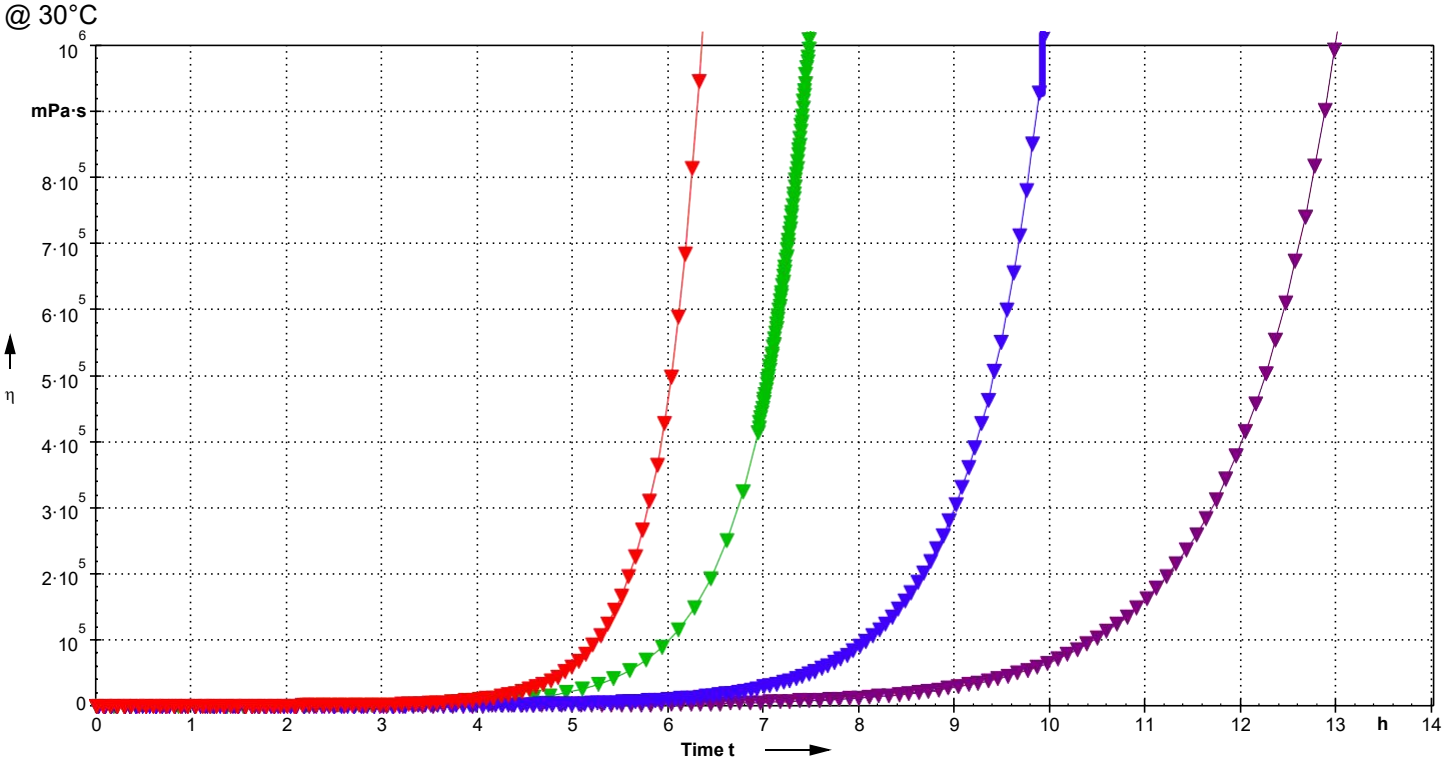
Gardner color:	*NF EN ISO 4630*	*Visual metod*
Refractive index :	*NF ISO 280*	
Viscosity:	*NF EN ISO 3219*	*Rheometer 50 mm, shear $10s^{-1}$*
Density:	*NF EN ISO 2811-1*	*Pyknometer*

Viscosities increase on 1 mm film thickness

@ 20 °C



@ 30°C



Mechanical properties on cast resin

Systems	Units	SR 8100 / SD 8822		SR 8100 / SD 8824	
Curing cycles		24 h @ AT + 24 h 40 °C	24 h @ AT + 16 h 60 °C	24 h @ AT + 24 h 40 °C	24 h @ AT + 8 h 60 °C
Tension					
Modulus of elasticity	N/mm^2	3000	2650	2700	2400
Maximum resistance	N/mm^2	70	66	60	59
Resistance at break	N/mm^2	63	61	50	50
Elongation at max.load	%	3.3	4.1	3.2	3.9
Elongation at break	%	3.8	5.5	3.8	5.9
Flexion					
Modulus of elasticity	N/mm^2	3390	3060	2970	2850
Maximum resistance	N/mm^2	115	120	108	106
Elongation at max.load	%	3.9	5.6	4.9	5.7
Elongation at break	%	5.8	9	11.8	12
Charpy impact strength	**kJ/m^2**	19	27	52	52
Water absorption 48 h / 70 °C	**%**	1.2	1.1	1.2	1.2
Glass Transition / DSC					
Tg1	**°C**	66	80	63	74
Tg1 max.	**°C**		90		81

Propriétés mécaniques sur résine pure:

		SR 8100 / SD 4771			SR 8100 / SD 4770		
Cycles de polymérisation		AT + 24 h 40 °C	AT + 16 h 60 °C	AT + 8 h 80 °C	AT + 8 h 40 °C + ŏ	AT + 16 h 60 °C	AT + 8 h 80 °C
Tension							
Modulus of elasticity	N/mm^2	3400	3250	3050	3000	3150	2850
Maximum resistance	N/mm^2	78	76	71	73	75	71
Resistance at break	N/mm^2	73	71	69	67	70	67
Elongation at max.load	%	3.6	4.4	4.5	3.9	4.5	4.7
Elongation at break	%	4.0	5.3	5.4	4.5	5.7	6.3
Flexion							
Modulus of elasticity	N/mm^2	3360	2900	3000	3250	3100	2900
Maximum resistance	N/mm^2	109	105	104	107	107	103
Elongation at max.load	%	4.4	5.4	5.4	4.4	5.1	5.4
Elongation at break	%						
Shear strenght	**N/mm²**	47	49	48	48	48	47
Compresive							
Contrainte seuil d'écoulement	N/mm^2	112	108	105	105	104	104
Déformation seuil d'écoulement	%	9	10	11	11	12	13
Impact Choc Charpy							
Resilience	KJ/m^2	26	34	34	21	25	35
Transition vitreuse							
Tg1	**°C**	65	80	83	65	76	84
Tg1 max.	**°C**			86			86

AT : Ambient Temperature
Tests carried out on samples of pure cast resin, without prior degassing, between steel plates.
Measures undertaken according to the following norms :
Tension: NF T 51-034
Flexion : NF T 51-001
Charpy impact strength: NF T 51-035
Compressive: NF T 51-101

Water absorption: Internal. Polymerisation according to cycle, machining,
weighting, time spent in distilled water at 70 °C / 48 hours,
weighting 1 hour after emerging,
drying 24 h at 40°C, weighting, mechanical tests on 10 samples
Glass transition DSC : ISO 11357-2 : 1999 -5°C to 180°C under nitrogen gaz
Tg1 or Onset : 1st point at 20 °C/mn
Tg1 maximum or Onset : second passage