

SR 8500 / SZ 8525

Fast and clear epoxy system for hot processes

Low viscosity epoxy system formulated for large scale production
 Short cycle times hot process: 10 minutes at 100 °C or 20' at 90 °C.
 Clear system after cure

Epoxy Resin SR 8500

		SR 8500
Aspect		Liquid
Colour		Clear to light yellow Gardner <2
Viscosity (mPa.s)	20 °C	9 800 ± 1 000
Rheometer	25 °C	4 500 ± 500
CP 50 mm	30 °C	2 300 ± 300
Shear rate 10 s ⁻¹	40 °C	750 ± 200
	50 °C	300 ± 150
	60 °C	150 ± 50
	70 °C	80 ± 30
	80 °C	50 ± 20
	90 °C	30 ± 10
	100 °C	25 ± 5
	110 °C	15 ± 3
Density :	20 °C	1.17 ± 0.01
Picnometre ISO 2811-1		

Hardener SZ 8525

		SZ 8525
Aspect		Liquid
Colour		Light yellow Gardner <3
Viscosity (mPa.s)	20 °C	33 ± 5
Rheometer	25 °C	25 ± 5
CP 50 mm	30 °C	17 ± 5
Shear rate 10 s ⁻¹	40 °C	11 ± 4
	50 °C	8 ± 3
	60 °C	6 ± 3
	70 °C	4 ± 2
	80 °C	3 ± 2
	Density :	20 °C
Picnometre ISO 2811-1		

SR 8500 / SZ 8525 mix properties

		SR 8500 / SZ 8525
Weight ratio		100 / 25 g
Volume ratio		100 / 30 ml
Viscosity (mPa.s)	20 °C	1 800 ± 400
Rheometer	25 °C	1 000 ± 200
PP 50 mm	30 °C	750 ± 150
Shear rate 10 s ⁻¹	40 °C	320 ± 60
	50 °C	130 ± 30
	60 °C	70 ± 20
	70 °C	50 ± 15
	80 °C	35 ± 10
	90 °C	30 ± 7
	100 °C	20 ± 3
	110 °C	< 20

Reactivity (Hot Plate) / Tg

Tooling temperature	Gel time (film)	Dust free (film)	Curing process (mn)	Glass transition (DSC)* Onset / Tg1 (°C)
@ 80 °C	8'	12'	30'	85-90
			45'	99
			60'	102
			75'	103
			90'	104
			120'	106
@ 90 °C	6'	7'	15'	94
			20'	102
			25'	104
			30'	106
			40'	106
@ 100 °C	4'	4' 50"	10'	104
			20'	113
@ 110 °C	2' 20"	3'	6'	96
			10'	114

DSC According to standard Iso 11357-2 :1999

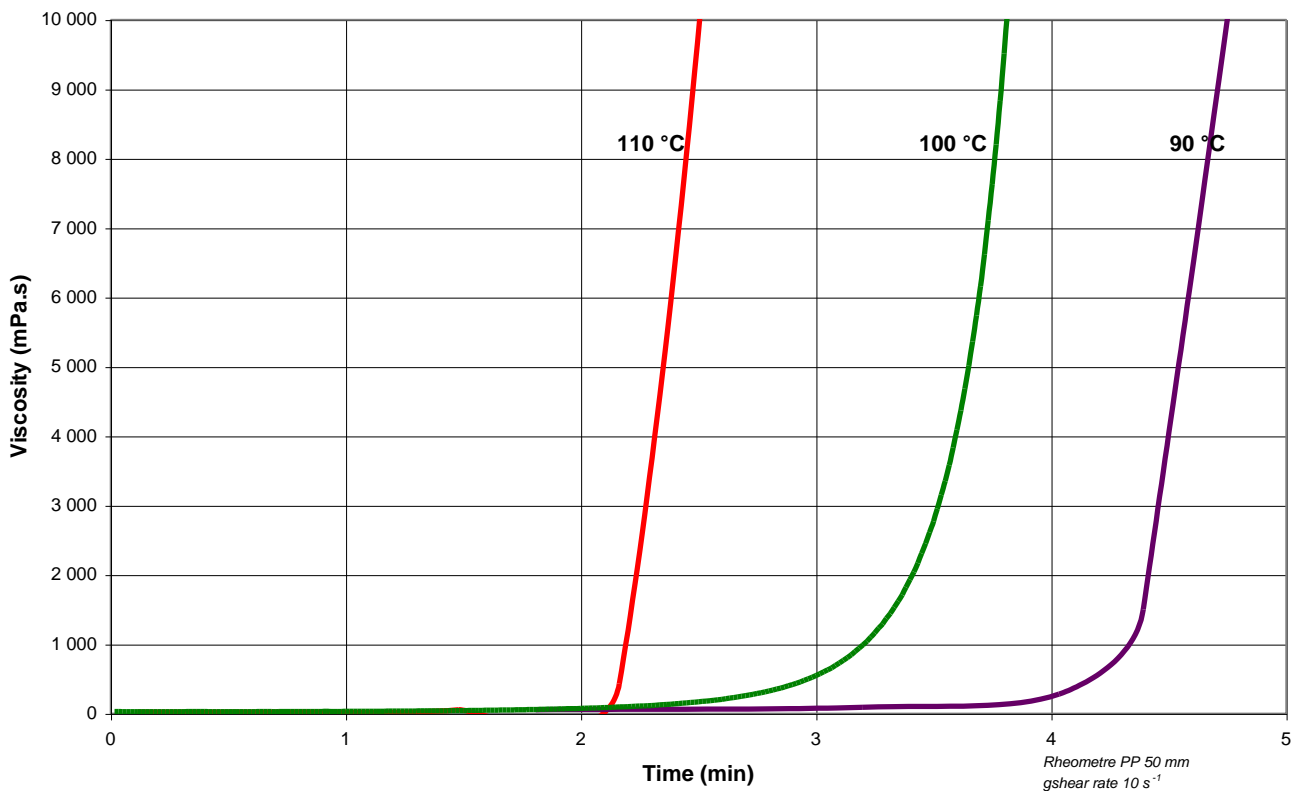
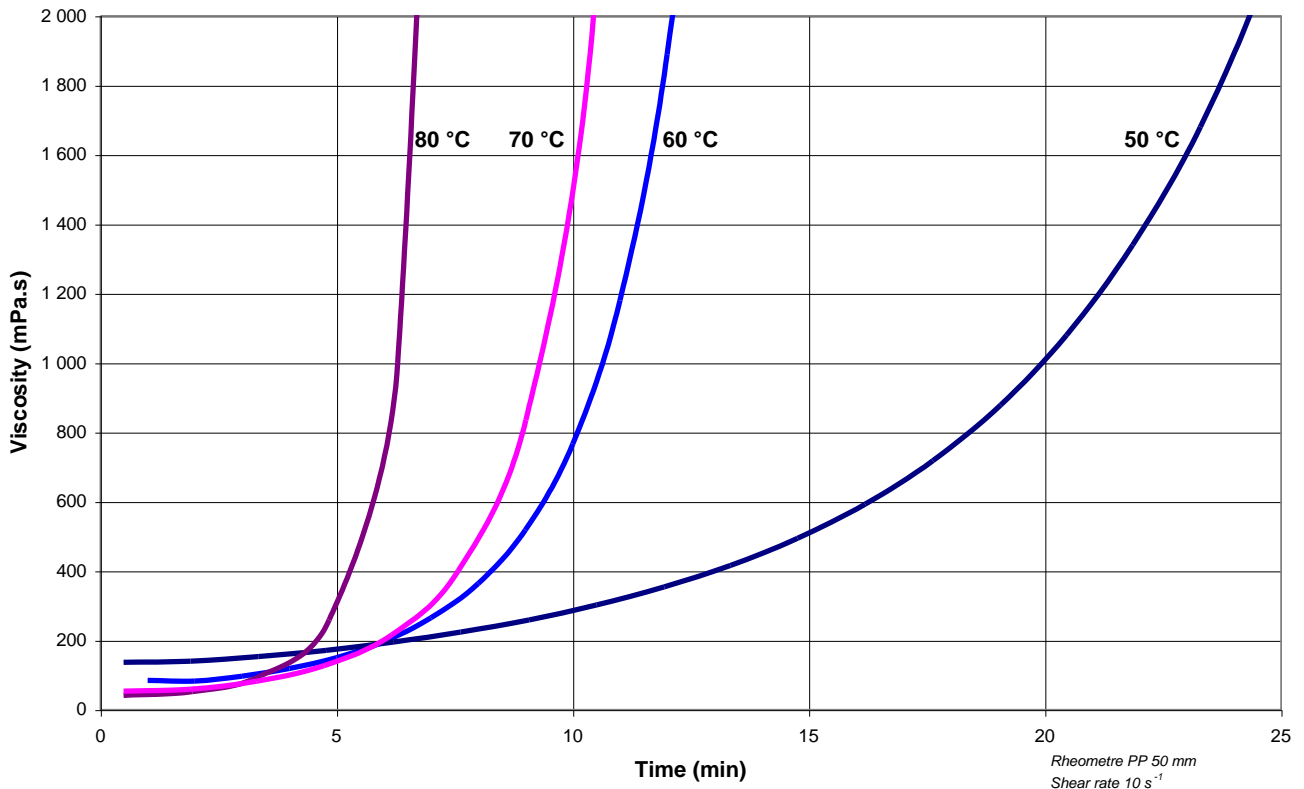
Typical curing cycle under hot press:

- @ 80 °C : 1 hour
- @ 90 °C : 20'
- @ 100 °C : 10'
- @ 110 °C : 8'

Pot-life:

100 g-mixture @ 23 °C: ~ 85 minutes

Reactivity – 1 mm film viscosity evolution at different temperatures



Mechanical properties on SR 8500 / SZ 8525 based laminates

Note about laminate manufacturing process:

Fabrics have been placed under vacuum at 60 °C to allow the infusion to occur.

The mix has then been prepared at ambient temperature and infused in the hot fabric.

Once the infusion is over the laminate is heated up to 100 °C for 15 minutes at different heating speed.

Finally, the part is quickly cooled down to 25 °C for unmoulding.

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Curing cycles :		10' at 60 °C then heat up 1°C / min then 15' at 100 °C	10' at 60 °C then heat up 5°C / min then 15' at 100 °C	10' at 60 °C then heat up 10°C / min then 15' at 100 °C	
Total cycle time		65 minutes	33 minutes	29 minutes	
Sampling					
Reinforcement		3300	3300	3300	
Number of layers		15	15	15	
process		infusion -0.8 bar	infusion -0.8 bar	infusion -0.8 bar	
Reinforcement weight ratio (%) (Mf)		73	72	74	
Flexion					
Modulus of elasticity	N/mm ²	25 000	23 000	22 100	
Maximum resistance	N/mm ²	700	660	640	
Elongation at maximum load	%	3.1	3.2	3.2	
Shear strength					
Shear stress	N/mm ²	60	48	48	
Charpy impact strength					
Resilience	kJ/m ²	240	210	225	
Water absorption		%poids	0.25	0.35	0.29
Glass transition					
Tg 1	°C	114	110	100	
Tg1 max.	°C	114	113	110	

Tests carried out in accordance with the following norms:

Flexion : NF T 57-105

Shear: NF T 57-104

Charpy Impact Strength: NF T 57-108

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

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

Reinforcement 3300: Twill 2/2 E Glass, weight 300 g/m²