

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.

Two different hardeners, **mixable in any proportions**, allow the moulding of small to large parts with fast demoulding time.

High mechanical properties can be achieved using the **SR 8100 / SD 873x**.

The cured system gives a temperature resistance up to 90°C (Tg 1)

Germanischer Lloyd approved

Approval n° :
WP 0920005 HH



Germanischer Lloyd

Epoxy resin

		SR 8100
Aspect / colour		Yellow liquid
Viscosity (mPa.s)	@ 15 °C	2370 – 100
Rheometer	@ 20 °C	1320 – 100
CP 50 mm	@ 25 °C	785 – 100
Shear rate 10 s ⁻¹	@ 30 °C	490 – 50
	@ 40 °C	220 – 50
Density (g/cm ³)	@ 20 °C	1.158 – 0.01
Picnometre ISO 2811-1		
Storage stability		24 months Crystallisation free

Hardeners SD 873x

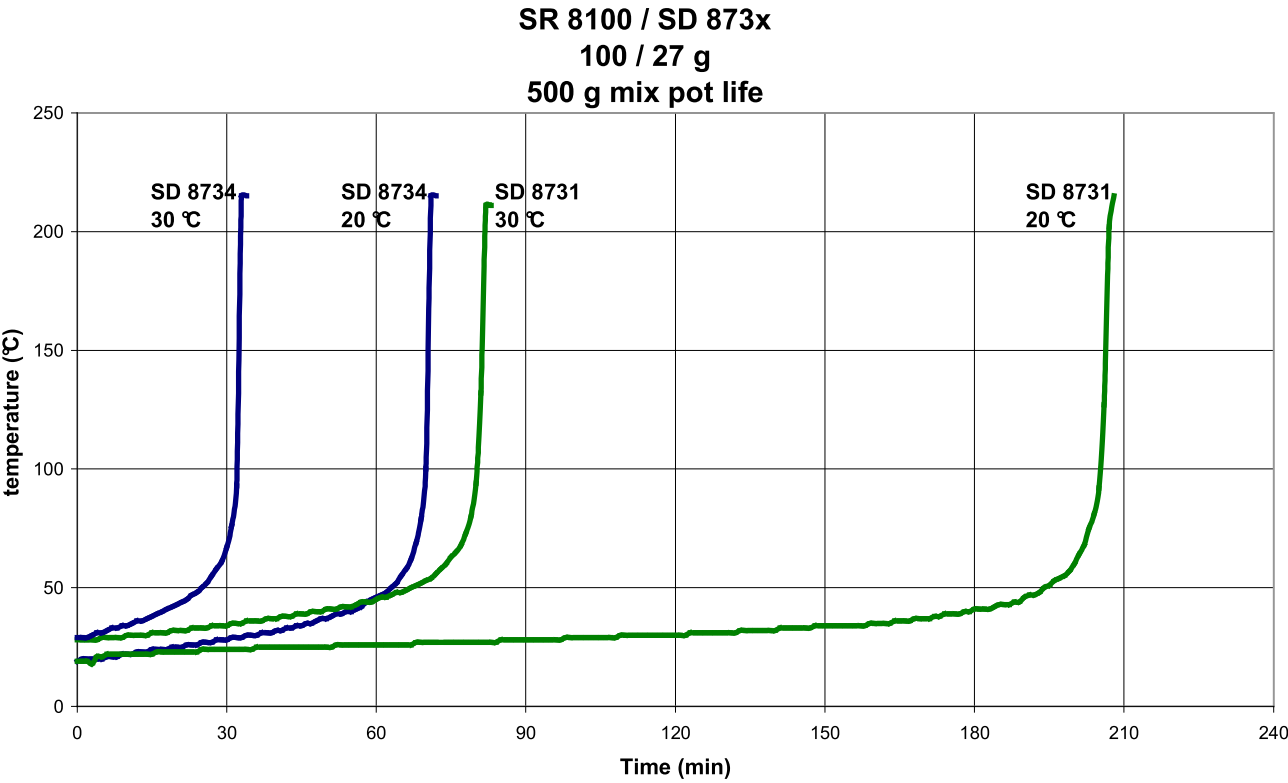
		SD 8734	SD 8731
Reactivity type		"fast"	"slow"
Aspect / colour		Clear to light yellow liquid	Clear liquid
Viscosity (mPa.s)	@ 15 °C	16 – 3	13 – 3
- Rheometre CP 50 mm shear rate 10 s ⁻¹	@ 20 °C	13 – 3	11 – 3
	@ 25 °C	10 – 3	9 – 3
	@ 30 °C	9 – 3	8 – 3
	@ 40 °C	6 – 3	6 – 3
Density (g/cm ³)	@ 20 °C	0.96 – 0.01	0.95 – 0.01
- Picnometre ISO 2811-1			

SR 8100 / SD 873x mix

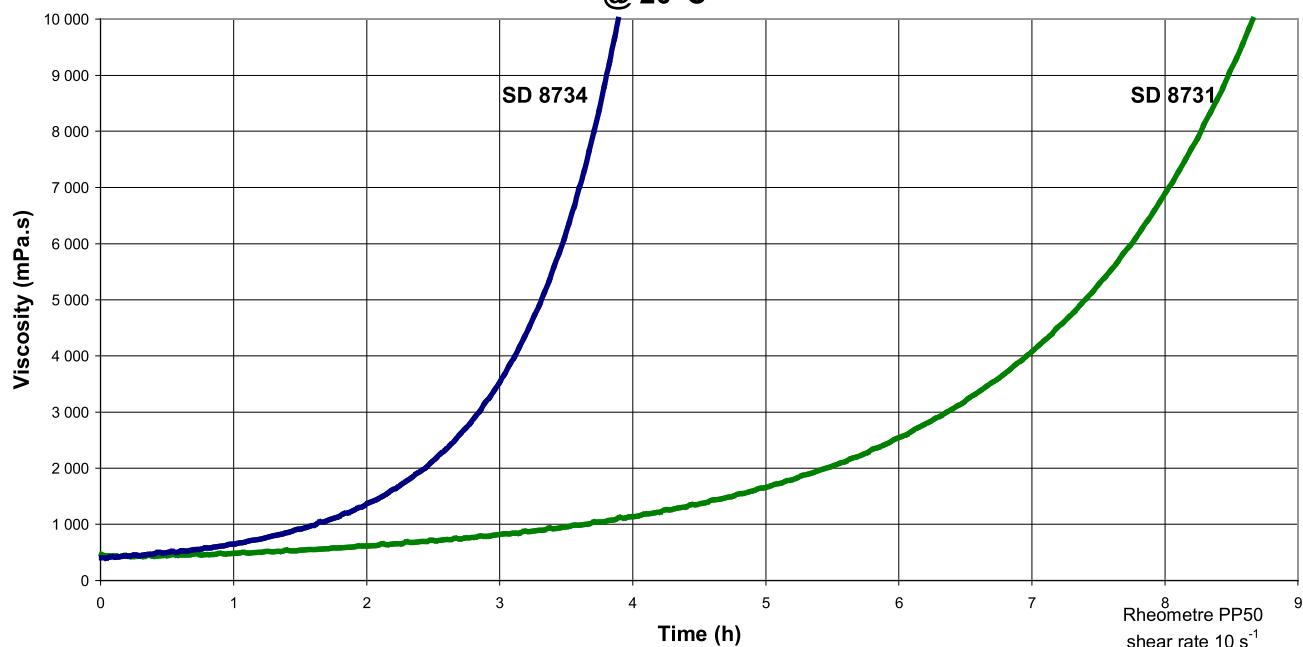
		SR 8100 / SD 8734	SR 8100 / SD 8731
Mix viscosity	@ 20 °C	350 – 100	330 – 100
(mPa.s)	@ 25 °C	275 – 100	250 – 100
Rheometre CP50 mm	@ 30 °C	190 – 50	180 – 50
Shear rate 10 s ⁻¹			
Weight ratio		100 g / 27 g	100 g / 27 g
Volume ratio		100 ml / 33 ml 3 / 1	100 ml / 33 ml 3 / 1

Mix reactivity SR 8100 / SD 873x

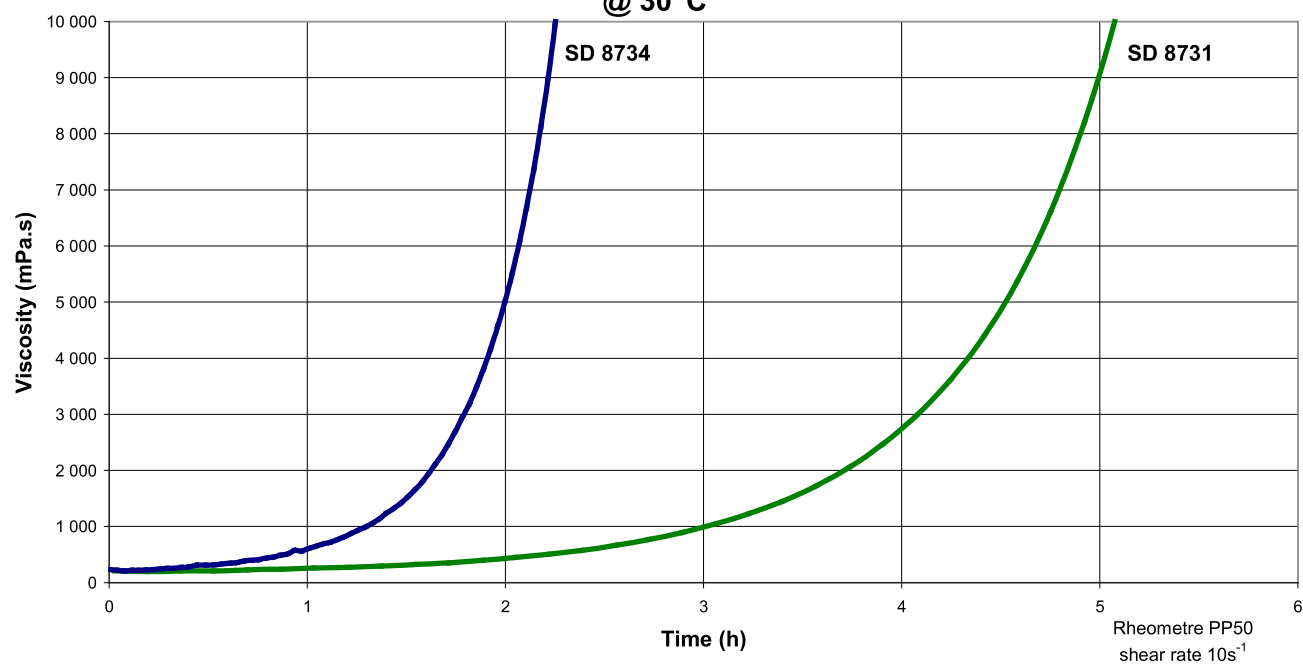
	SR 8100 / SD 8734	SR 8100 / SD 8731
Exothermic temperature on 500 g mix (°C)		
@ 20 °C	> 215	> 215
@ 25 °C	> 215	> 215
@ 30 °C	> 215	> 215
Time to reach the exothermic peak on 500 g mix:		
@ 20 °C	1 h 11'	3 h 28'
@ 25 °C	49'	2 h 12'
@ 30 °C	33'	1 h 22'
Time to reach 50°C on 500 g mix:		
@ 20 °C	1 h 03'	3 h 14'
@ 25 °C	40'	1 h 54'
@ 30 °C	25'	1 h 07'



1 mm film viscosity evolution
SR 8100 / SD 873x
100 / 27 g
@ 20 °C



1 mm film viscosity evolution
SR 8100 / SD 873x
100 / 27 g
@ 30 °C



Mechanical properties on cast resin :

		SR 8100 / SD 8734			
Curing cycle 		14 days @ AT*	24 h AT* + 24 h @ 40 °C	24 h AT* + 16 h @ 60 °C	24 h AT* + 8 h @ 80 °C
Tension					
Modulus of elasticity	N/mm ²	3240	3000	2830	2864
Maximum resistance	N/mm ²	59	72	74	75
Resistance at break	N/mm ²	59	67	68	71
Elongation at max. load	%	2	3.5	4.3	4.7
Elongation at break	%	2	3.7	5.4	5.8
Flexion					
Modulus of elasticity	N/mm ²	3320	3120	2880	2890
Maximum resistance	N/mm ²	102	110	109	106
Elongation at max. load	%	3.7	4.7	5.5	5.7
Elongation at break	%	4.4	10	9.1	12.4
Charpy impact strength	KJ/m ²	10	23	25	32
Glass Transition / DSC					
Tg1	°C	63	70	86	90
Tg1 max.	°C				90

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

Glass transition DSC : ISO 11357-2 : 1999 -5°C t o 180°C under nitrogen gaz

Tg1 or Onset : 1st point at 20 °C/mn

Tg1 maximum or Onset : second passage

		SR 8100 / SD 8731			
Curing cycle 		14 days @ AT*	24 h AT* + 24 h @ 40 °C	24 h AT* + 16 h @ 60 °C	24 h AT* + 8 h @ 80 °C
Tension					
Modulus of elasticity	N/mm ²	3160	2870	2750	2745
Maximum resistance	N/mm ²	51	71	75	75
Resistance at break	N/mm ²	50	70	73	70
Elongation at max. load	%	1.8	3.4	4.4	4.9
Elongation at break	%	1.8	3.6	5	7
Flexion					
Modulus of elasticity	N/mm ²	3330	2900	2750	2790
Maximum resistance	N/mm ²	73	107	112	105
Elongation at max. load	%	2	4.9	5.6	5.8
Elongation at break	%	2.1	6.1	9.7	10.6
Charpy impact strength	KJ/m ²	10	22	41	43
Glass Transition / DSC					
Tg1	°C	61	70	87	90
Tg1 max.	°C				88

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

Glass transition DSC : ISO 11357-2 : 1999 -5°C t o 180°C under nitrogen gaz

Tg1 or Onset : 1st point at 20 °C/mn

Tg1 maximum or Onset : second passage

* AT : Ambient Temperature

Mechanical properties of SR 8100 based laminates

		SR 8100 / SD 8734	SR 8100 / SD 8731
Curing cycle		24 hours @ AT* + 16h @ 60°C	24 hours @ AT* + 16h @ 60°C
Laminate			
Reinforcement		3300	3300
Processing		infusion	infusion
Number of layers		15	15
Glass content ratio by weight (Wf)		76	75
Flexion			
Modulus of elasticity	N/mm ²	21760	21440
Maximum resistance	N/mm ²	660	638
Elongation at maximum load	%	3.5	3.5
Shear strength			
Shear stress	N/mm ²	50	48
Charpy impact strength			
	KJ/m ²	210	189
Water absorption			
	% (weight)	0.33	0.30
Glass transition			
Tg 1	°C	86	87
Tg 1 max.	°C	87	93

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

* AT : Ambient temperature