

## **SR 8100 / SD 882X** **Infusion System**



Lloyd's  
Register



**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 large parts, with fast demoulding time.

High mechanical properties can be achieved using **SR 8100 / SD 882x**.

The cured system gives a temperature resistance up to 80°C (Tg 1)

DNV-GL (TAK00001FU) and LR (MATS/4612/1) approved.

### **Profile:**

Implementation from 20 °C and with a hygrometry of less than 70%.

Choose the hardener according to ambient temperature, implementation and size of the part to be made.

Cure at Ambient temperature and post cure at 40 to 80 °C

### **Applications:**

RTM, infusion, injection, hand laminating, tooling, casting, laminates...

## Epoxy resin SR 8100

Appearance		liquid
Color		yellow
Gardner color		≤ 2
Viscosity (mPa.s)	@ 15 °C	2350 ± 450
	@ 20 °C	1250 ± 250
	@ 25 °C	765 ± 155
	@ 30 °C	475 ± 95
	@ 40 °C	NC ± NC
Density	@ 20 °C	1,1580
Refractive index	@ 25 °C	1,554 ± ,002
Storage (months)	@ Ta	24

## Hardener(s)

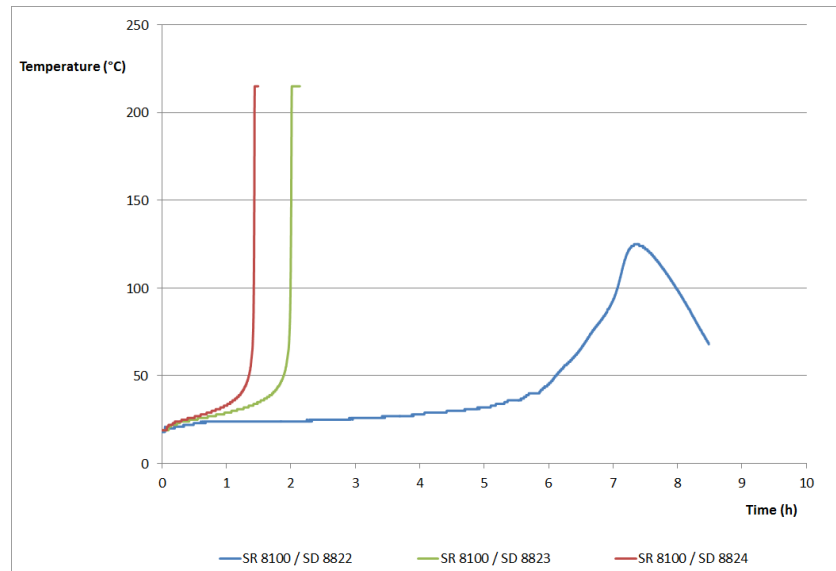
		SD 8824	SD 8823	SD 8822
Appearance		liquid	liquid	liquid
Color		colourless	light yellow	colourless
Gardner color		≤ 4	≤ 3	≤ 3
Reactivity level		Standard	Medium	Slow
Viscosity (mPa.s)	@ 15 °C	7 ± 2	12 ± 2	26 ± 5
	@ 20 °C	6 ± 2	9 ± 3	20 ± 4
	@ 25 °C	5 ± 2	8 ± 3	16 ± 3
	@ 30 °C	4 ± 2	7 ± 2	13 ± 3
Density	@ 20 °C	0,9440	0,9420	0,9370
Refractive index	@ 25 °C	1,498 ± ,002	1,4844 ± ,002	1,471 ± ,002
Storage (months)	@ Ta	24	24	24

## Mixe(s) SR 8100 / SD 882X

	SD 8824	SD 8823	SD 8822
Appearance	liquid	liquid	liquid
Color	light yellow	light yellow	light yellow
Mixing ratio			
By weight	100 / 22	100 / 26	100 / 31
By volume	100 / 27	100 / 32	100 / 39
Initial viscosity @ 20 °C	300	340	390
PP 50 mm / 10 s <sup>-1</sup> (mPa.s) @ 30 °C			
Density @ 20 °C			

## Reactivity @ 20 °C on 500 g SR 8100 / SD 882X

	SD 8824	SD 8823	SD 8822
Exothermic temperature (°C)	210	210	205
Time to reach exothermic peak	87	125	210
Time to reach 50 °C (min)	81	115	188

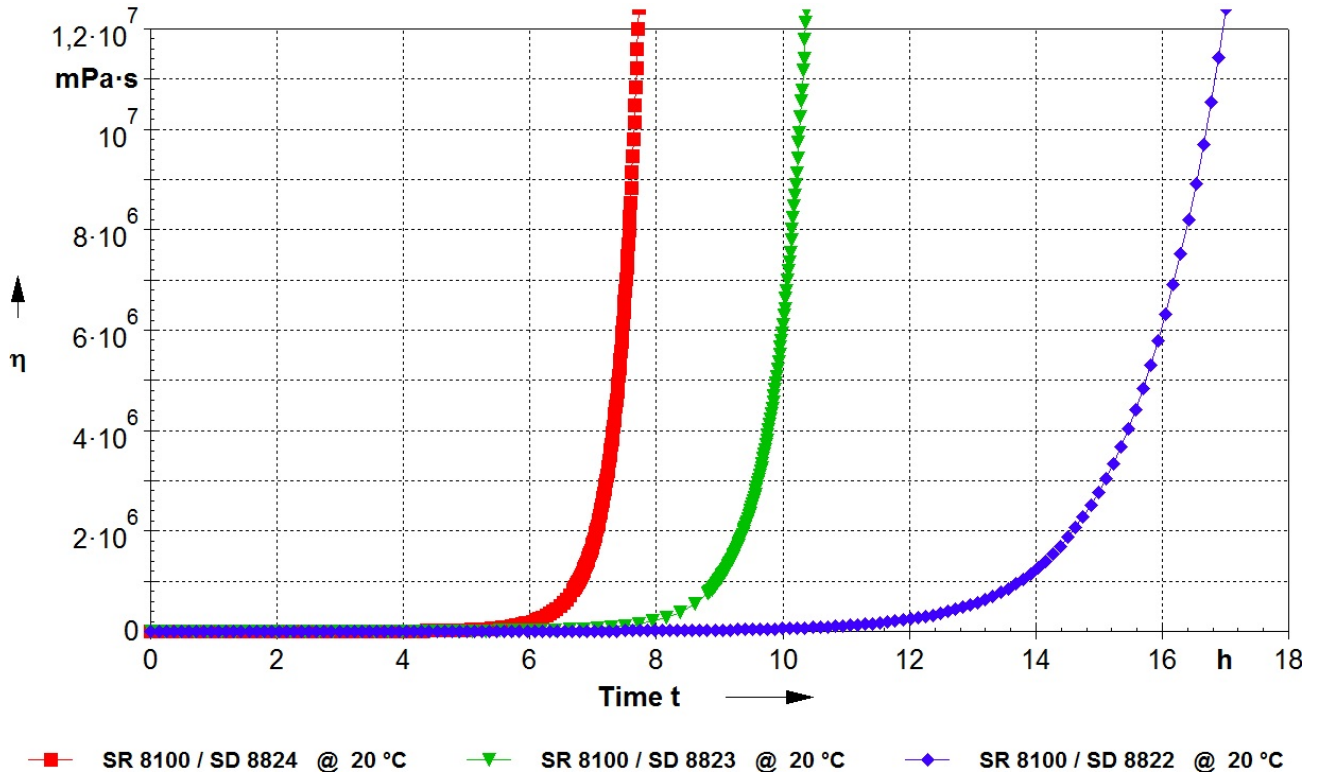


### Reactivity @ 25 °C on 500 g SR 8100 / SD 882X

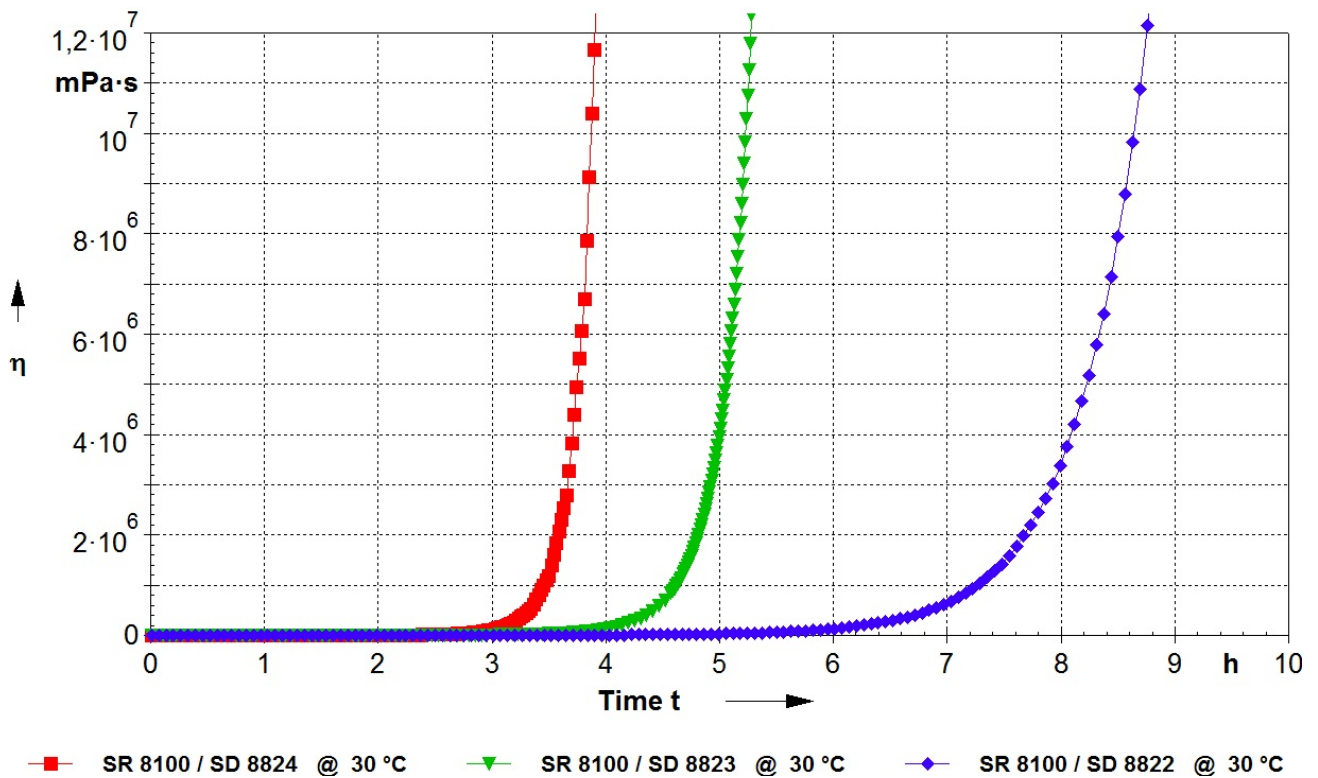
	SD 8824	SD 8823	SD 8822
Exothermic temperature (°C)	210	210	210
Time to reach exothermic peak	54	84	171
Time to reach 50 °C (min)	46	73	148

## Reactivity on 1 mm thick layer

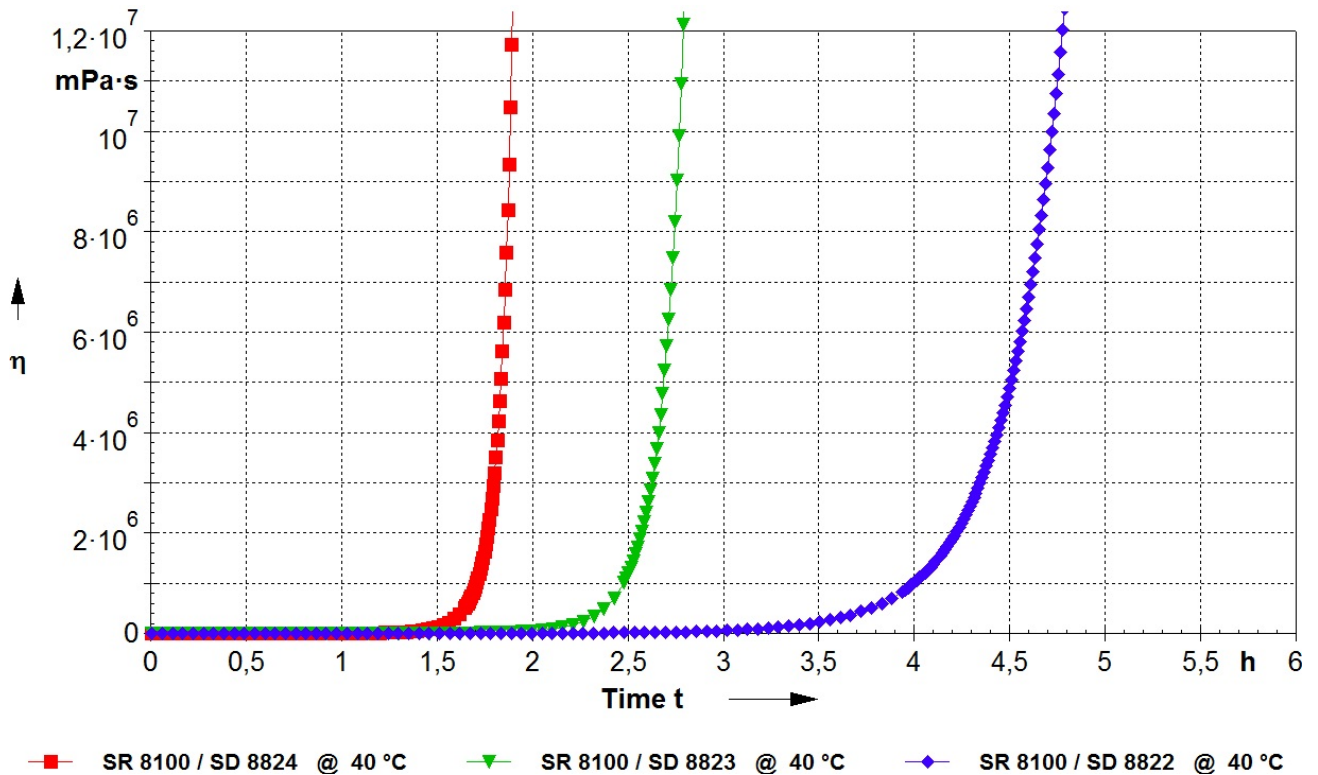
@ 20 °C



@ 30 °C



@ 40 °C



## Mechanical properties on cast resin :

		SR 8100 / SD 8824			SR 8100 / SD 8823		
Curing cycles		24 h @ Ta + 24 h @ 40 °C	24 h @ Ta + 16 h @ 60 °C	24 h @ Ta + 8 h @ 80 °C	24 h @ Ta + 24 h @ 40 °C	24 h @ Ta + 16 h @ 60 °C	24 h @ Ta + 8 h @ 80 °C
<b>Tensile</b>							
Modulus	N/mm <sup>2</sup>	2 900	2 850	2 800	3 200	2 900	2 900
Maximum strength	N/mm <sup>2</sup>	60	59	65	66	74	71
Breaking Strength	N/mm <sup>2</sup>	50	50	54	66	71	66
Elongation at max strength	%	3,2	3,9	4,7	2,6	4,4	4,7
Elongation at break	%	3,8	5,9	9,3	2,6	5	6,4
<b>Flexion</b>							
Modulus	N/mm <sup>2</sup>	3 000	2 850	2 800	3 100	3 000	2 900
Maximum strength	N/mm <sup>2</sup>	108	106	104	114	117	115
Breaking Strength	N/mm <sup>2</sup>			64	51	75	81
Elongation at max strength	%	4,9	5,7	5,7	4,6	5,4	5,8
Elongation at break	%	11,8	12	13,6	15,2	11,5	11,1
<b>Shear</b>							
Breaking Strength	N/mm <sup>2</sup>	42	43	41	47	47	46
<b>Compression</b>							
Modulus	N/mm <sup>2</sup>						
Yield strength	N/mm <sup>2</sup>	90	89	86	102	99	96
Offset compression yield	%	11,8	15,9	13,6	12,6	12,5	13,2
<b>Charpy impact strength</b>							
Resilience	kJ/m <sup>2</sup>	52	52	50	97	93	55
<b>DSC glass transition</b>							
TG1 onset	°C	63	74	77	64	76	88
TG1 max onset	°C			80			88
<b>DTMA glass transition</b>							
TG tan delta	°C						
TeiG onset G'	°C						
TmG midpoint G'	°C						
TefG endpoint	°C						
TG peak G''	°C						

## Mechanical properties on cast resin :

		<b>SR 8100 / SD 8822</b>		
Curing cycles		24 h @ Ta + 24 h @ 40 °C	24 h @ Ta + 16 h @ 60 °C	24 h @ Ta + 8 h @ 80 °C
<b>Tensile</b>				
Modulus	N/mm <sup>2</sup>	3 000	2 850	2 800
Maximum strength	N/mm <sup>2</sup>	70	71	73
Breaking Strength	N/mm <sup>2</sup>	63	4,1	70
Elongation at max strength	%	3,3	6,1	5,3
Elongation at break	%	3,8	5,5	6,3
<b>Flexion</b>				
Modulus	N/mm <sup>2</sup>	3 400	3 050	2 800
Maximum strength	N/mm <sup>2</sup>	115	120	119
Breaking Strength	N/mm <sup>2</sup>			
Elongation at max strength	%	3,9	5,6	6,2
Elongation at break	%	5,8	9	9,3
<b>Shear</b>				
Breaking Strength	N/mm <sup>2</sup>	47	47	46
<b>Compression</b>				
Modulus	N/mm <sup>2</sup>			
Yield strength	N/mm <sup>2</sup>	112	111	105
Offset compression yield	%	9,8	9,7	7,9
<b>Charpy impact strength</b>				
Resilience	kJ/m <sup>2</sup>	26	35	26
<b>DSC glass transition</b>				
TG1 onset	°C	68	85	88
TG1 max onset	°C			90
<b>DTMA glass transition</b>				
TG tan delta	°C			
TeiG onset G'	°C			
TmG midpoint G'	°C			
TefG endpoint	°C			
TG peak G''	°C			



**Tests carried out on samples of pure cast resin, without prior degassing, between steel plates.**

**Measures undertaken according to the following norms:**

**Mechanical tests:**

Tension:	NF EN ISO 527-2:2012
Flexion:	NF EN ISO 178:2011
Compression:	NF EN ISO 604:2004 or NF EN ISO 844:2014 (foam product)
Charpy impact strength:	NF EN ISO 179-1:2010
Shear Strength:	ASTM D732-17 (Punch Tool)
Interlaminar shrinkage strength:	ASTM D5528-13
Toughness (GIC et KIC) :	ISO 13586:2000

Water absorption: Internal. Polymerization according to cycle, machining, weighing, time spent in distilled water at 70 °C / 48 hours, weighing 1 hour after emerging,

**Thermal tests:**

Glass transition DSC:	NF EN ISO 11357-2:2014	-5°C to 180 °C under nitrogen gas
	$T_{G1}$ or Onset:	1 <sup>st</sup> scan at 20 °C/min
	$T_{G1}$ maximum or Onset:	2nd scan at 20 °C/min

Glass transition DTMA:	Temperature ramp 0 °C to 180 °C @ 2°C/min under normal atmosphere	
	NF EN ISO 11357-1:2016	$T_G$ onset G'
	ASTM D4065-12	$T_G$ peak G''

**Physical tests:**

Gardner color:	NF EN ISO 4630:2016	Visual method
Refractive index:	NF ISO 280:1999	
Viscosity:	NF EN ISO 3219:1994	Rheometer 50 mm, shear 10 s <sup>-1</sup>
Density on liquids:	ISO 2811-1:2016	Pycnometer
Density on solid:	NF EN ISO 1183-3:1999	Helium Pycnometer
Density on foam:	NF EN ISO 845:2009	
Gel time:	Cross G' G''	Rheometer CP50 - Shear rate 10 s <sup>-1</sup>
Green Carbone content:	ASTM D6866-16 or XP CEN/TS 16640 Avril 2014	

TA: Ambient temperature (20 to 25 °C)

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