



## 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 large parts, with fast demoulding time.

High mechanical properties can be achieved using the **SR 8100 / SD 8822-24**.

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



#### Epoxy resin SR 8100

Aspect / colour		Yellow liquid
Viscosity (mPa.s)	@ 15 °C	2370 ± 100
<i>Rheometer</i>	@ 20 °C	1320 ± 100
<i>CP 50 mm</i>	@ 25 °C	785 ± 100
<i>Shear rate 10 s<sup>-1</sup></i>	@ 30 °C	490 ± 50
	@ 40 °C	220 ± 50
Density (g/cm <sup>3</sup> )	@ 20 °C	1.158
Storage stability	10°C < ambient < 25°C Crystallisation free	24 Months

#### Hardeners SD 882x

Reference		<b>SD 8822</b>	<b>SD 8822 – SD 8824 50 / 50 by weight</b>	<b>SD 8824</b>
Reactivity type		<b>"slow"</b>	<b>"intermediate"</b>	<b>« standard »</b>
Aspect / colour		Light yellow liquid	Light yellow liquid	Light yellow liquid
Viscosity (mPa.s)	@ 15 °C	27 ± 5	12 ± 3	7 ± 2
<i>Rheometer</i>	@ 20 °C	20 ± 5	9 ± 3	6 ± 2
<i>CP 50 mm</i>	@ 25 °C	16 ± 5	8 ± 3	5 ± 2
<i>Shear rate 10 s<sup>-1</sup></i>	@ 30 °C	13 ± 5	7 ± 3	4 ± 2
	@ 40 °C	9 ± 5	5 ± 3	3 ± 1
Storage stability	15 to 25°C	24 months	24 months	24 months
Density (g/cm <sup>3</sup> )	@ 20°C	0.935	0.942 ± 0.01	0.942

#### SR 8100 / SD 882x Mix

Reference		8100 / 8822	SR 8100 / <b>8822-8824</b> <b>50/50 weight</b>	8100 / 8824
Mix viscosity (mPa.s)	@ 20°C	390 ± 100	340 ± 100	300 ± 100
<i>Rheometer</i>	@ 25°C	340 ± 100	310 ± 100	285 ± 100
<i>PP 50 mm</i>				
<i>Shear rate 10 s<sup>-1</sup></i>				
Mixing ratio by weight		<b>100 g / 31 g</b>	<b>100 / 26 g</b>	<b>100 g / 22 g</b>
Mixing ratio by volume		<b>100 ml / 39 ml</b>	<b>100 / 32 ml</b>	<b>100 ml / 27 ml</b>

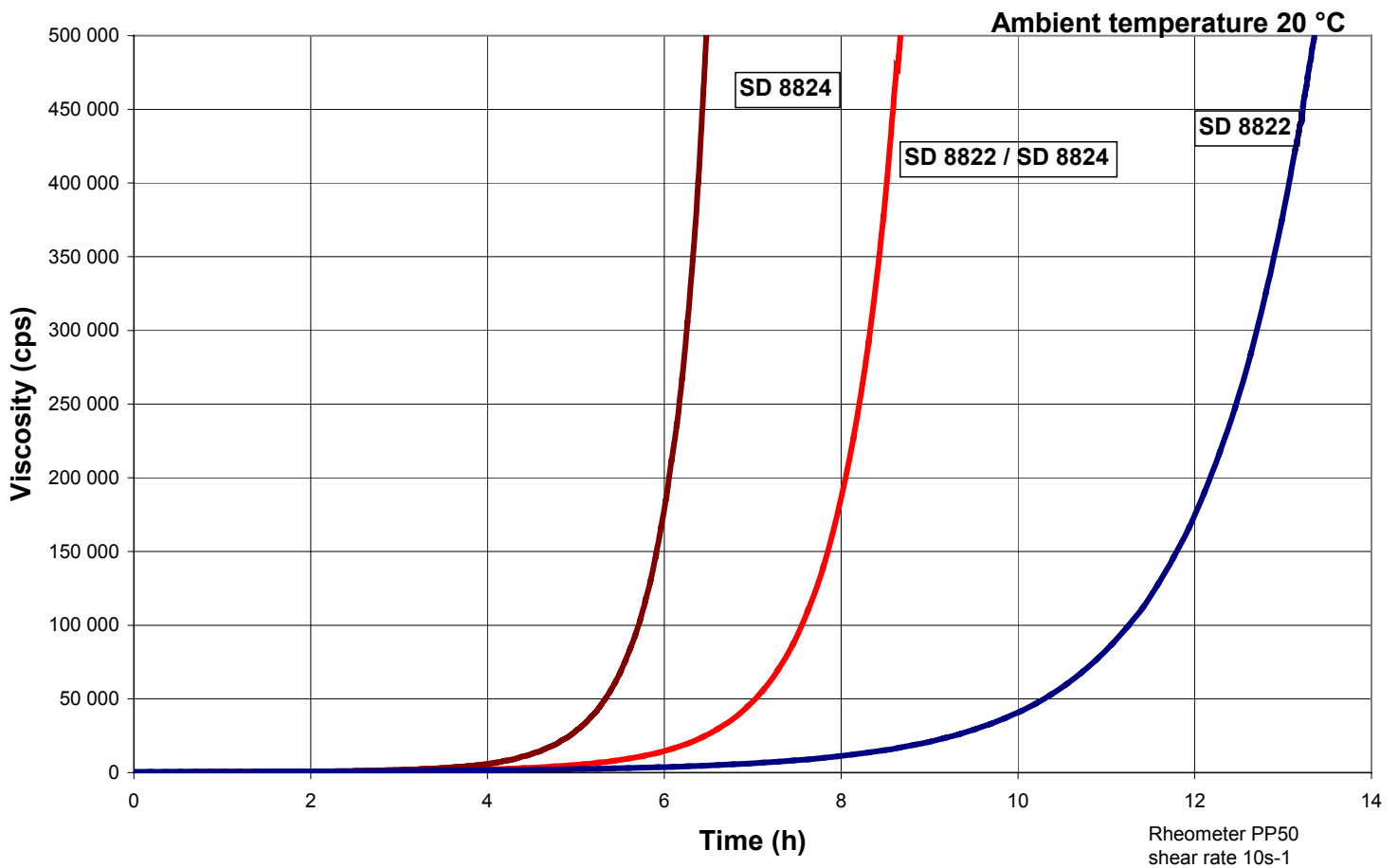


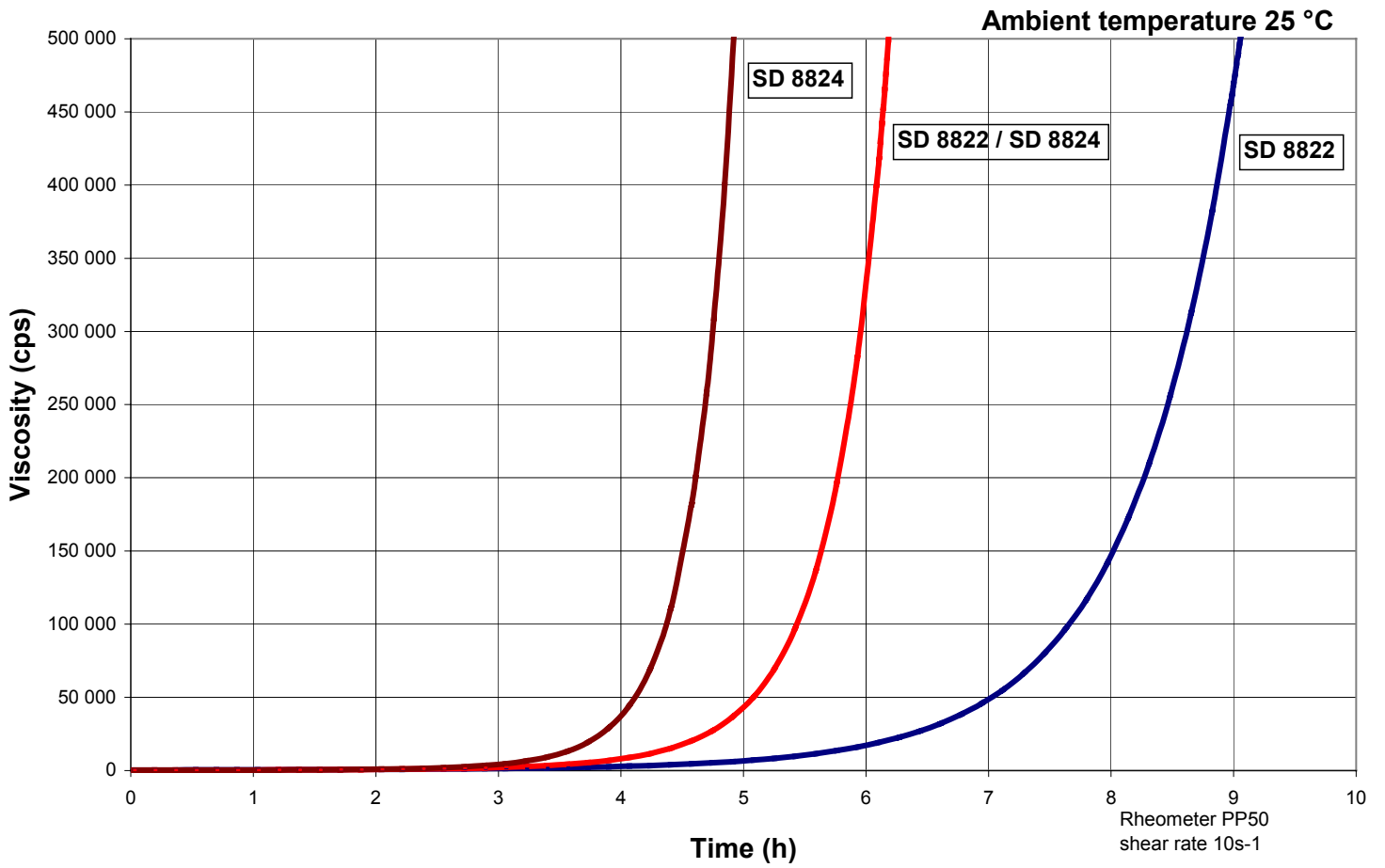
### Reactivity of the mix SR 8100 / SD 882x

	8100 / 8822	8100 / 8822-8824 50/50 weight	8100 / 8824
Exothermic temperature on 500 g mix (°C)			
@ 20 °C	205	>210	>210
@ 25 °C	> 210	>210	>210
Time to reach the exothermic peak on 500 g mix:			
@ 20 °C	3 h 30'	2 h 05'	1 h 27'
@ 25 °C	2 h 51'	1 h 24'	54'
Time to reach 50°C on 500 g mix:			
@ 20 °C	3 h 08'	1 h 55'	1 h 21'
@ 25 °C	2 h 28'	1 h 13'	46'

### Polymerisation under temperature

Gel time on resin film	SD 8822	SD 8824
@ 40 °C	2 h 33'	1 h 07'
@ 60 °C	56'	26'
@ 80 °C	23'	10'





**Packaging (in Kg)**

Resin <b>SR 8100</b>	Hardener <b>SD 8822</b>	Hardener <b>SD 8824</b>
4 x 1000		880
3 x 1000	930	
1 000	2 x 155	220
200	3 x 20.8	2 x 22
31.5	9.76	6.93
12	3.72	2.64
5.6	1.73	1.23
2	0.62	0.44



### Mechanical properties on cast resin

Systems	Units	SR 8100 / SD 8822		SR 8100 / SD 8824	
		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
Curing cycles					
<b>Tension</b>					
Modulus of elasticity	N/mm <sup>2</sup>	3000	2650	2700	2400
Maximum resistance	N/mm <sup>2</sup>	70	66	60	59
Resistance at break	N/mm <sup>2</sup>	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
<b>Flexion</b>					
Modulus of elasticity	N/mm <sup>2</sup>	3390	3060	2970	2850
Maximum resistance	N/mm <sup>2</sup>	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
<b>Charpy impact strength</b>	kJ/m <sup>2</sup>	19	27	52	52
Water absorption 48 h / 70 °C	%			1.2	1.2
<b>Glass Transition / DSC</b>					
Tg1	°C	66	80	63	74
Tg1 max.	°C		90		81

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

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

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



## Mechanical properties of laminates based on SR 8100 resin

Systems	Units	8100 / 8822	8100 / 8824
Cure cycles		24 h @ AT + 16 h 60°C	24 h @ AT + 16 h 60°C
<b>Laminate</b>			
Reinforcement		3300	3300
Number of layers		15	15
Glass content ratio by weight (Wf)		76	77
<b>Flexion</b>			
Modulus of elasticity	N/mm <sup>2</sup>	27530	27620
Maximum resistance	N/mm <sup>2</sup>	665	685
Elongation at maximum load	%	3.1	3
<b>Shear strength</b>			
Shear stress	N/mm <sup>2</sup>	42	48
<b>Charpy impact strength</b>			
	kJ/m <sup>2</sup>	235	201
<b>Water absorption</b>			
	% Weight		
<b>Glass transition</b>			
Tg 1	°C	82	79
Tg1 max.	°C	91	80

AT : Ambient Temperature

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,

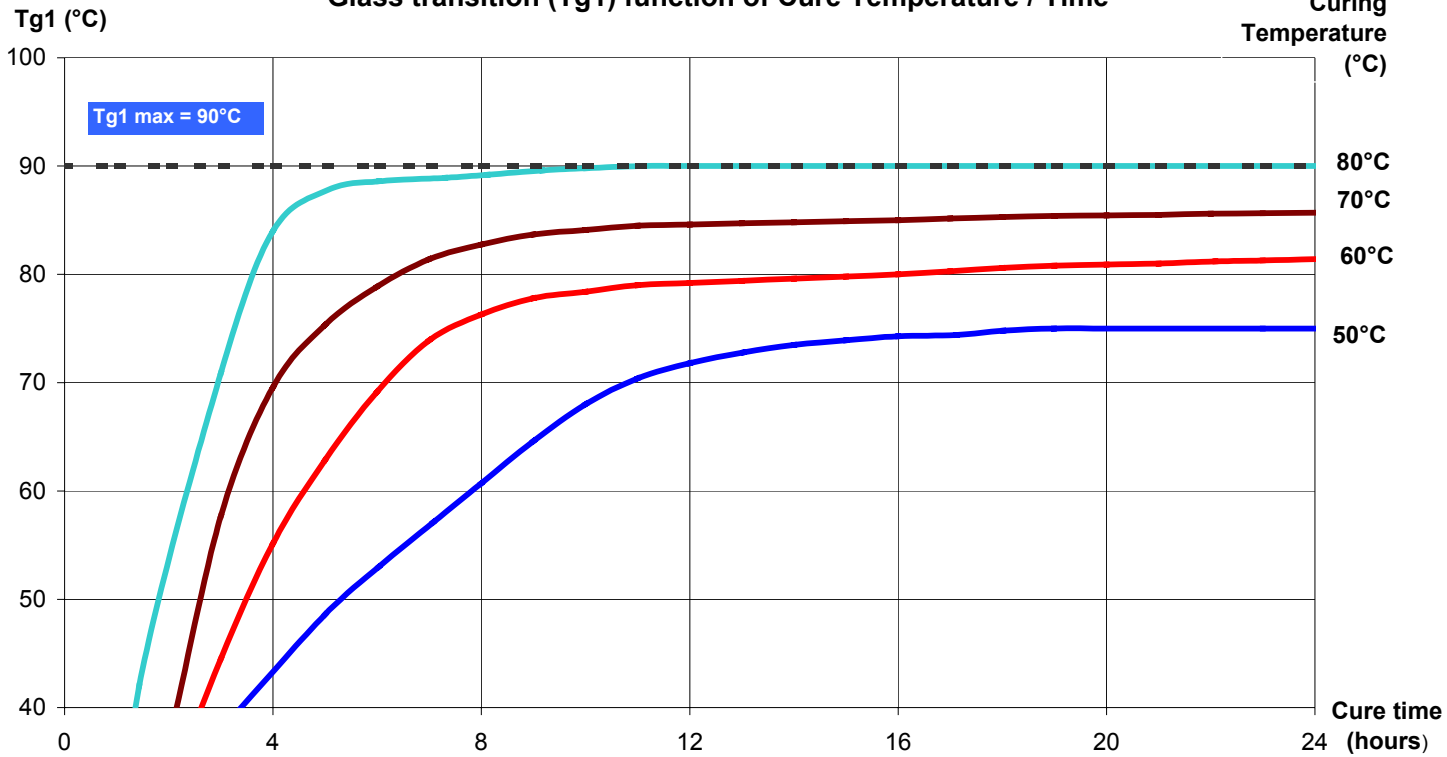
drying 24 h at 40°C, weighting, mechanical tests on 10 samples

Reinforcement 3300: Twill 2/2 E Glass, weight 300 g/m<sup>2</sup>

The informations that we give by writing or verbally, in the context of our technical assistance and our trials, do not engage our responsibility. We advice the users of SICOMIN's epoxy system, to verify by some practical trials if our products are suitable for the envisaged processes and applications. The use, the implementation and the transformation of the supplied products, are not under our control and your responsibility only will respond for it. If our responsibility should nevertheless be involved, it would be, for all the damages, limited to the value of the goods supplied by us and implement by you. We guaranty the non-reproachable quality of our products, in the general context of sales and delivery.

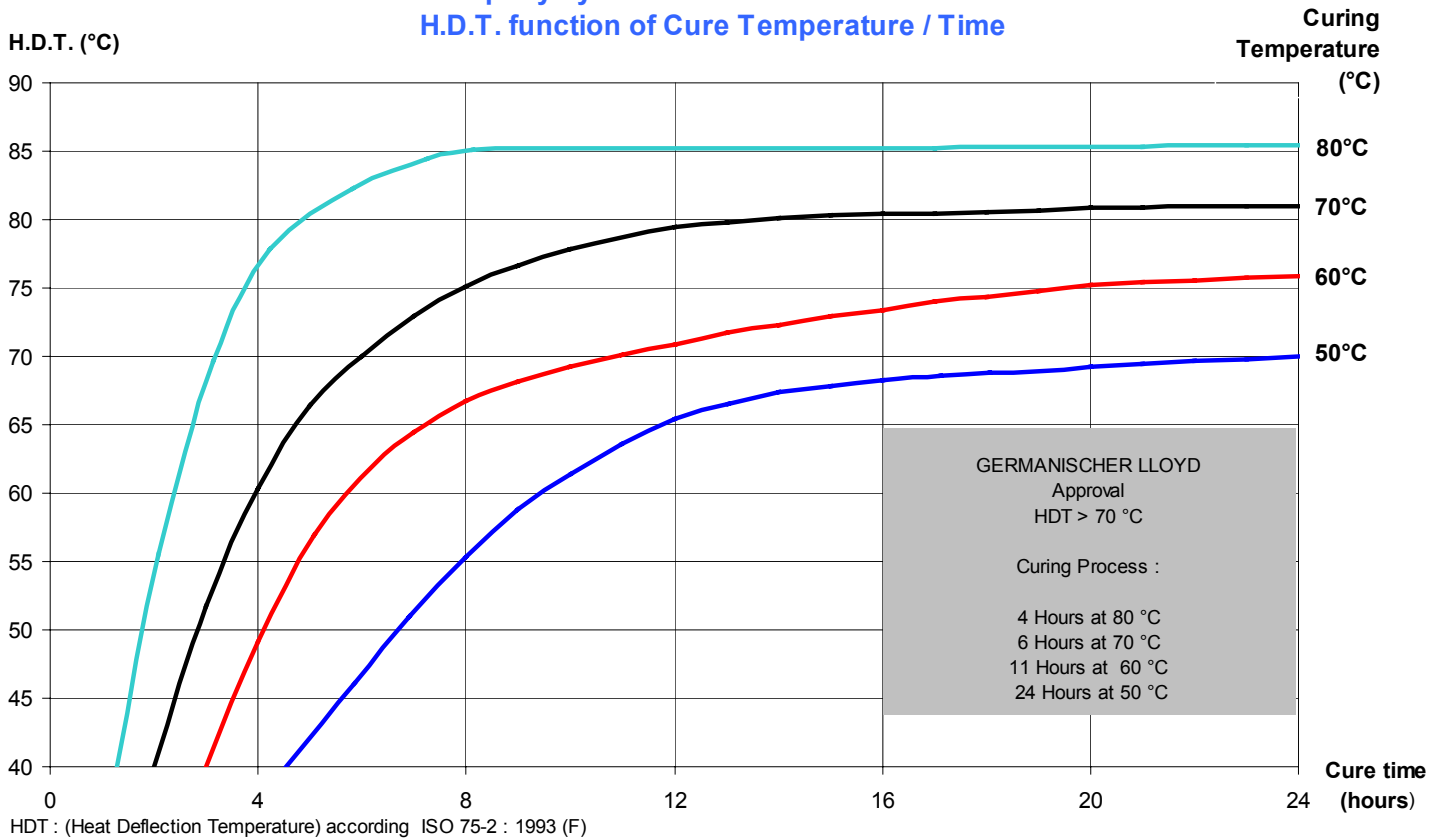


**Epoxy system SR 8100 / SD 8822**  
**Glass transition (Tg1) function of Cure Temperature / Time**



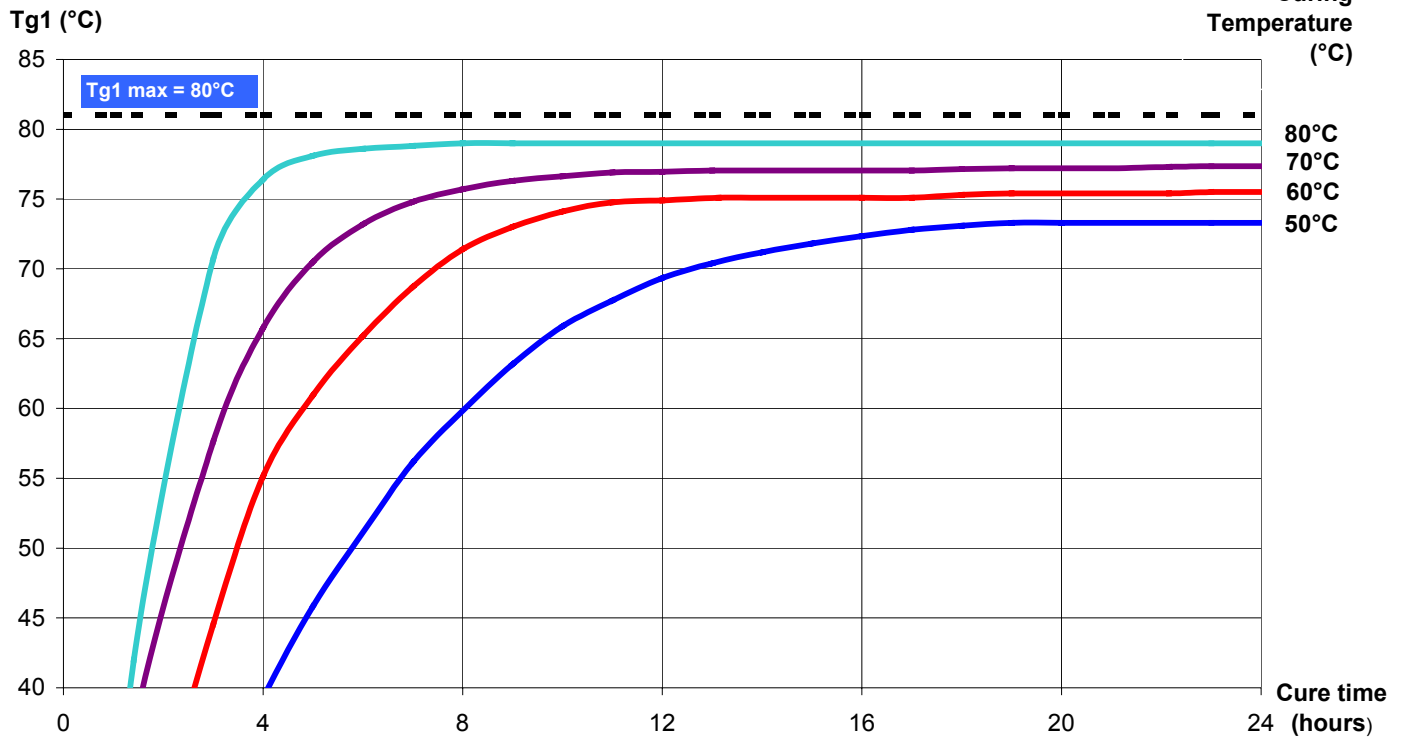
Glass transition measured by DSC according to standard ISO 11357-2 : 1999.  
Tg1 : 1<sup>st</sup> point at 20°C/mn (Onset method) - Tg1 max : second run -5°C/180°C under N<sub>2</sub>.

**Epoxy system SR 8100 / SD SD 8822**  
**H.D.T. function of Cure Temperature / Time**





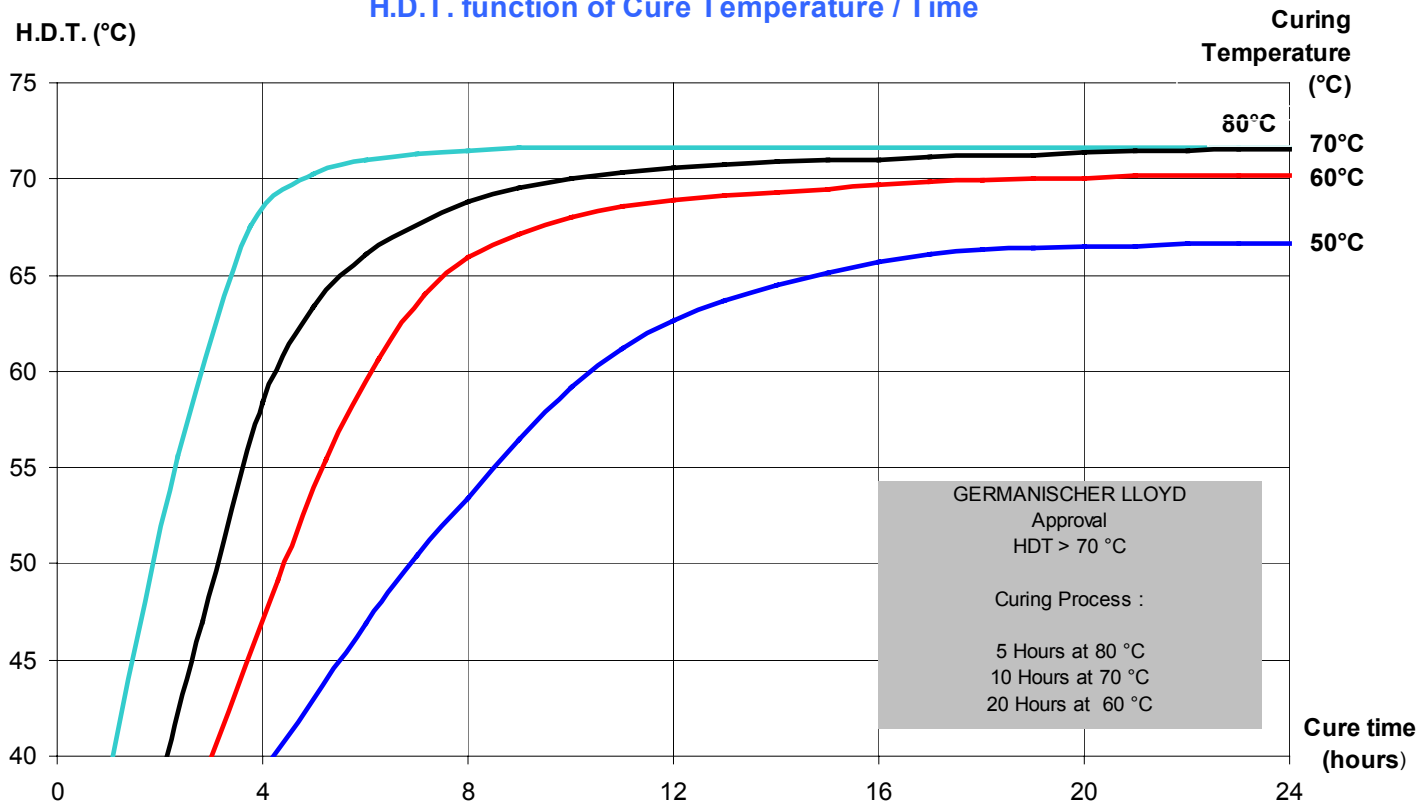
**Epoxy system SR 8100 / SD 8824**  
**Glass transition (Tg1) function of Cure Temperature / Time**



Glass transition measured by DSC according to standard ISO 11357-2 : 1999.  
Tg1 : 1<sup>st</sup> point at 20°C/mn (Onset method) - Tg1 max : second run -5°C/180°C under N<sub>2</sub>.

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**Epoxy system SR 8100 / SD SD 8824**  
**H.D.T. function of Cure Temperature / Time**



GERMANISCHER LLOYD  
Approval  
HDT > 70 °C

Curing Process :

- 5 Hours at 80 °C
- 10 Hours at 70 °C
- 20 Hours at 60 °C

HDT : (Heat Deflection Temperature) according ISO 75-2 : 1993 (F)