

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 ± 480
Rheometer	@ 20 °C	1320 ± 260
CP 50 mm	@ 25 °C	785 ± 155
Shear rate 10 s ⁻¹	@ 30 °C	490 ± 100
	@ 40 °C	220 ± 45
Density (g/cm ³)	@ 20 °C	1.158
Storage stability	10°C < ambient < 25°C Crystallisation free	24 Months

 Approval n° :
 WP 0320006 HH

Germanischer Lloyd

Hardeners SD 882x

Reference		SD 8822	SD 8823*	SD 8824
Reactivity type		"slow"	"intermediate"	« standard »
Aspect / colour		Light yellow liquid	Light yellow liquid	Light yellow liquid
Viscosity (mPa.s)	@ 15 °C	27 ± 5	12 ± 3	7 ± 2
Rheometer	@ 20 °C	20 ± 5	9 ± 3	6 ± 2
CP 50 mm	@ 25 °C	16 ± 5	8 ± 3	5 ± 2
Shear rate 10 s ⁻¹	@ 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 ³)	@ 20°C	0.935	0.942 ± 0.01	0.942

*: SD 8823 is a blend SD 8824 / SD 8822 50/50 by weight

SR 8100 / SD 882x Mix

Reference		SR 8100 / SD 8822	SR 8100 / SD 8823	SR 8100 / SD 8824
Mix viscosity (mPa.s)	@ 20°C	390 ± 80	340 ± 70	300 ± 60
Rheometer	@ 25°C	340 ± 70	310 ± 60	285 ± 60
PP 50 mm				
Shear rate 10 s ⁻¹				
Mixing ratio by weight		100 g / 31 g	100 / 26 g	100 g / 22 g
Mixing ratio by volume		100 ml / 39 ml	100 / 32 ml	100 ml / 27 ml

Reactivity of the mix SR 8100 / SD 882x

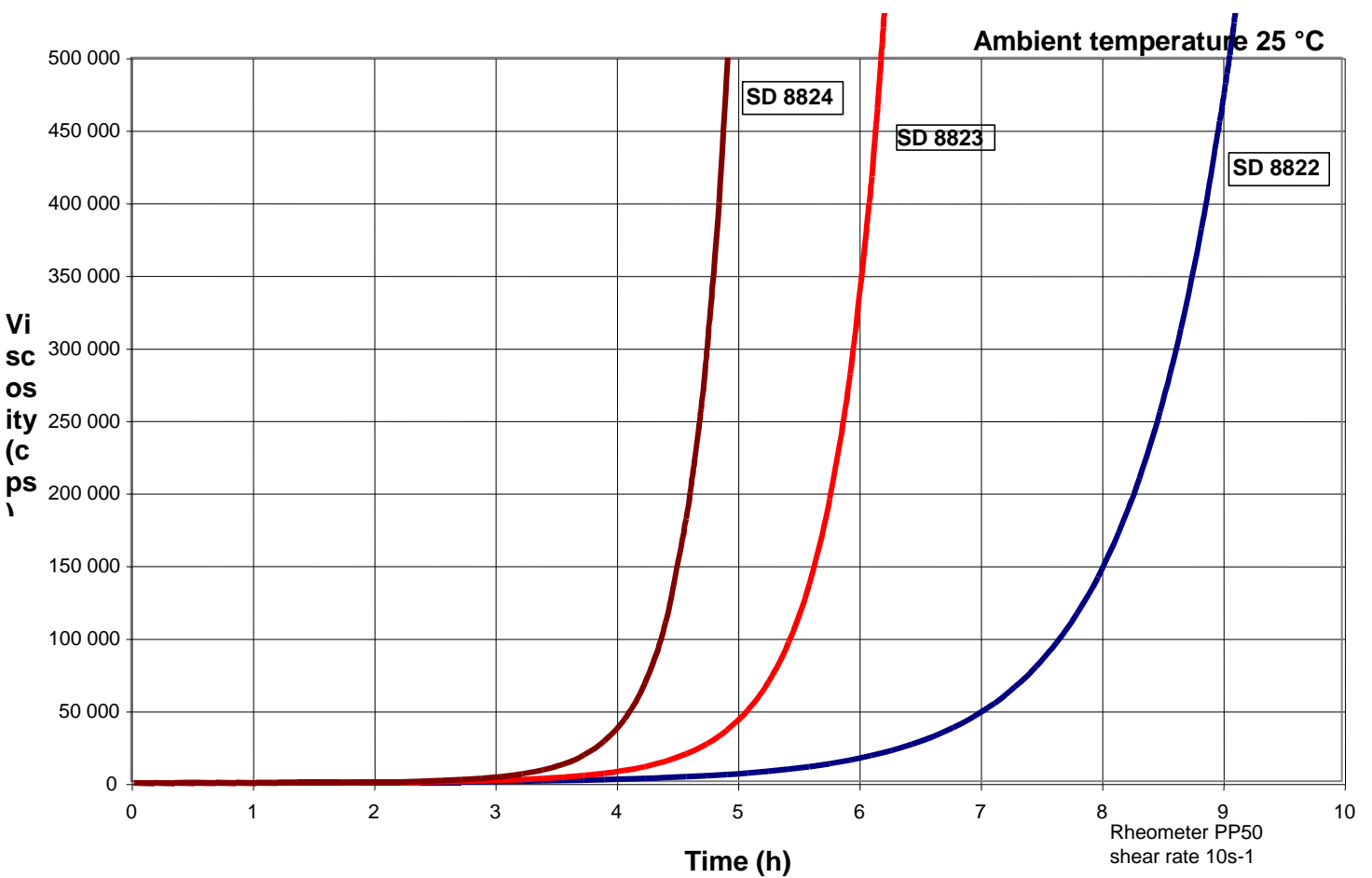
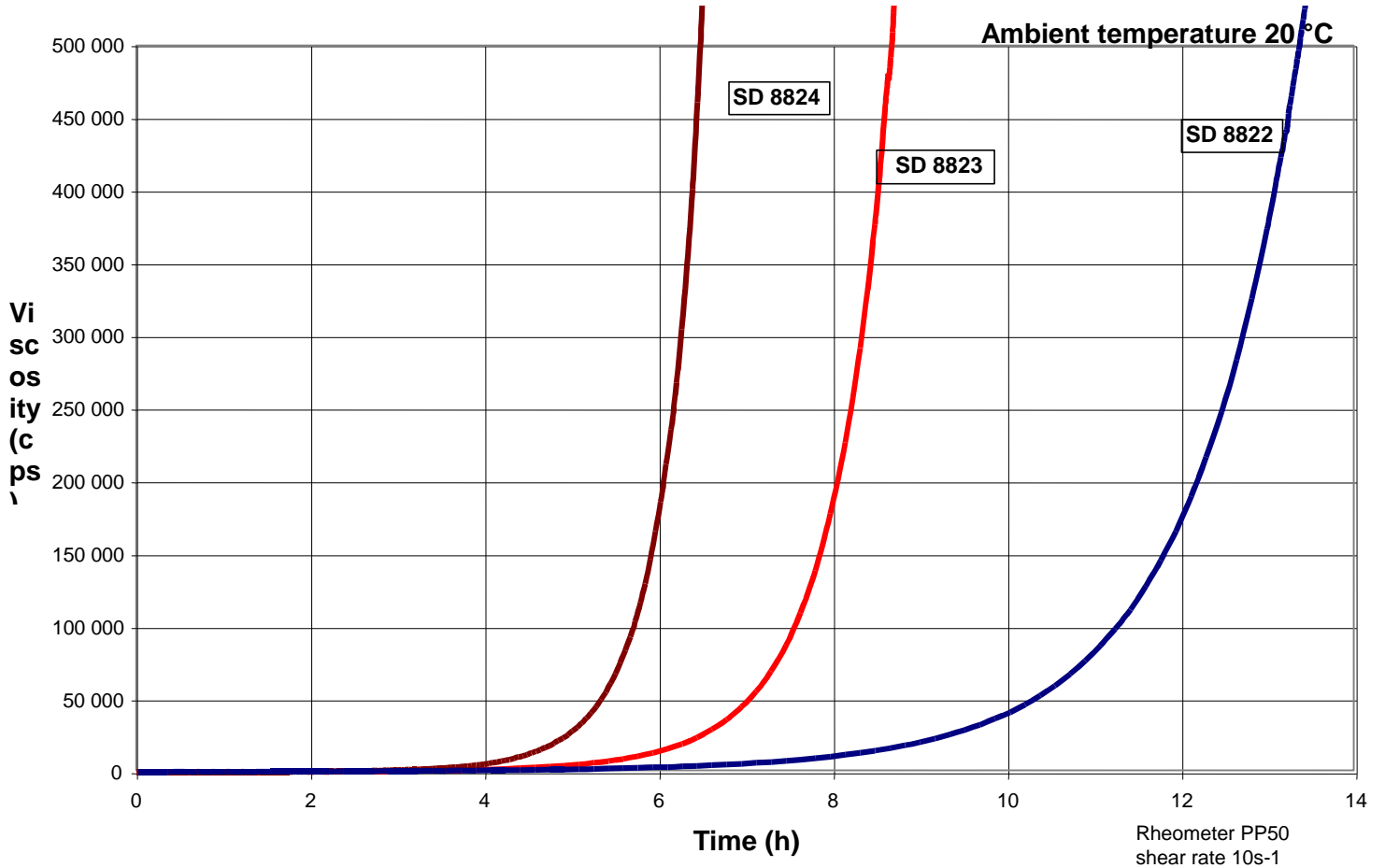
	SR 8100 / SD 8822	SR 8100 / SD 8823	SR 8100 / SD 8824
Exothermic temperature on 500 g mix (°C)			
@ 20 °C	205	>210	>210
@ 25 °C	> 210	>210	>210
Time to reach the exothermic peak on 500 g mix:			
@ 20 °C	3 h 30'	2 h 05'	1 h 27'
@ 25 °C	2 h 51'	1 h 24'	54'
Time to reach 50°C on 500 g mix:			
@ 20 °C	3 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 SR 8100	Hardener SD 8822	Hardener SD 8824
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	
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/m²	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

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, 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

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
Laminate			
Reinforcement		3300	3300
Number of layers		15	15
Glass content ratio by weight (Wf)		76	77
Flexion			
Modulus of elasticity	N/mm ²	27530	27620
Maximum resistance	N/mm ²	665	685
Elongation at maximum load	%	3.1	3
Shear strength			
Shear stress	N/mm ²	42	48
Charpy impact strength			
	kJ/m ²	235	201
Water absorption			
	% Weight	0.37	0.38
Glass transition			
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

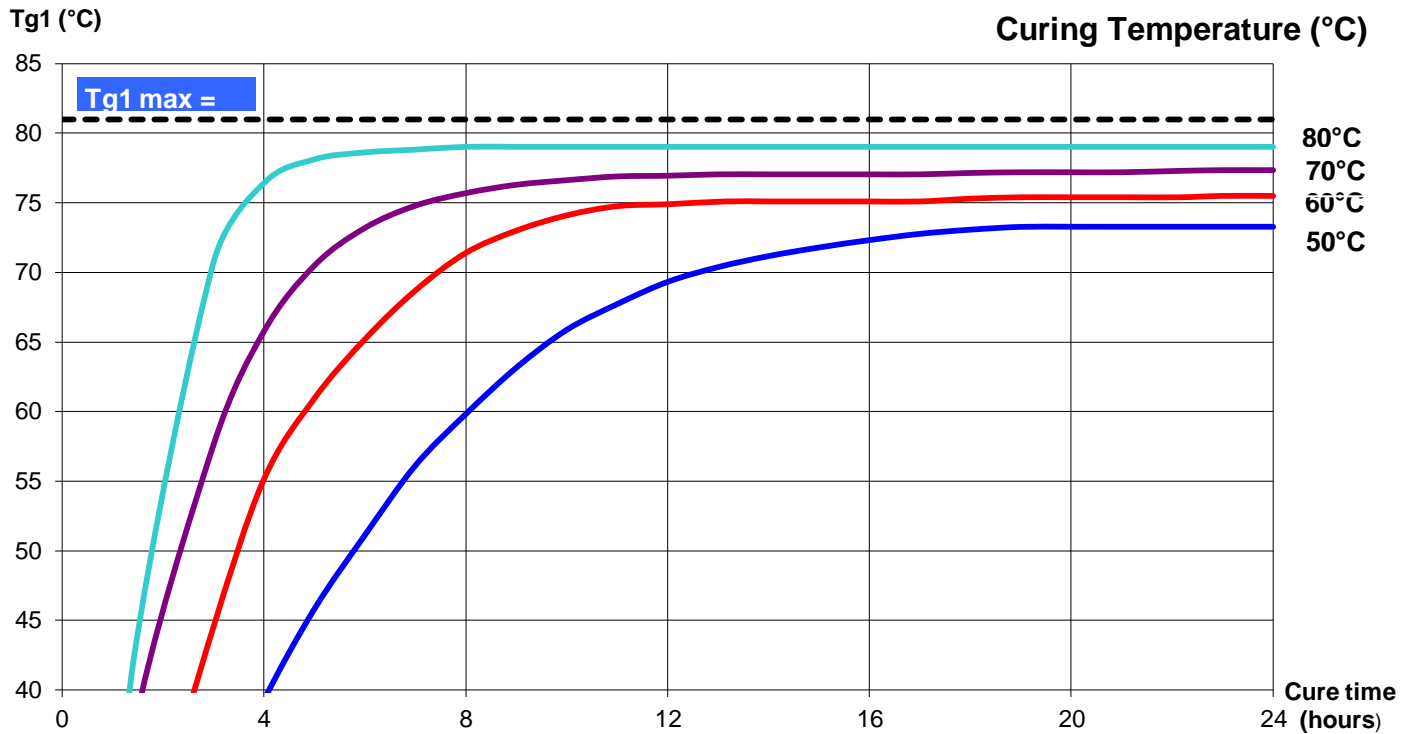
Reinforcement 3300:

Twill 2/2 E Glass, weight 300 g/m²

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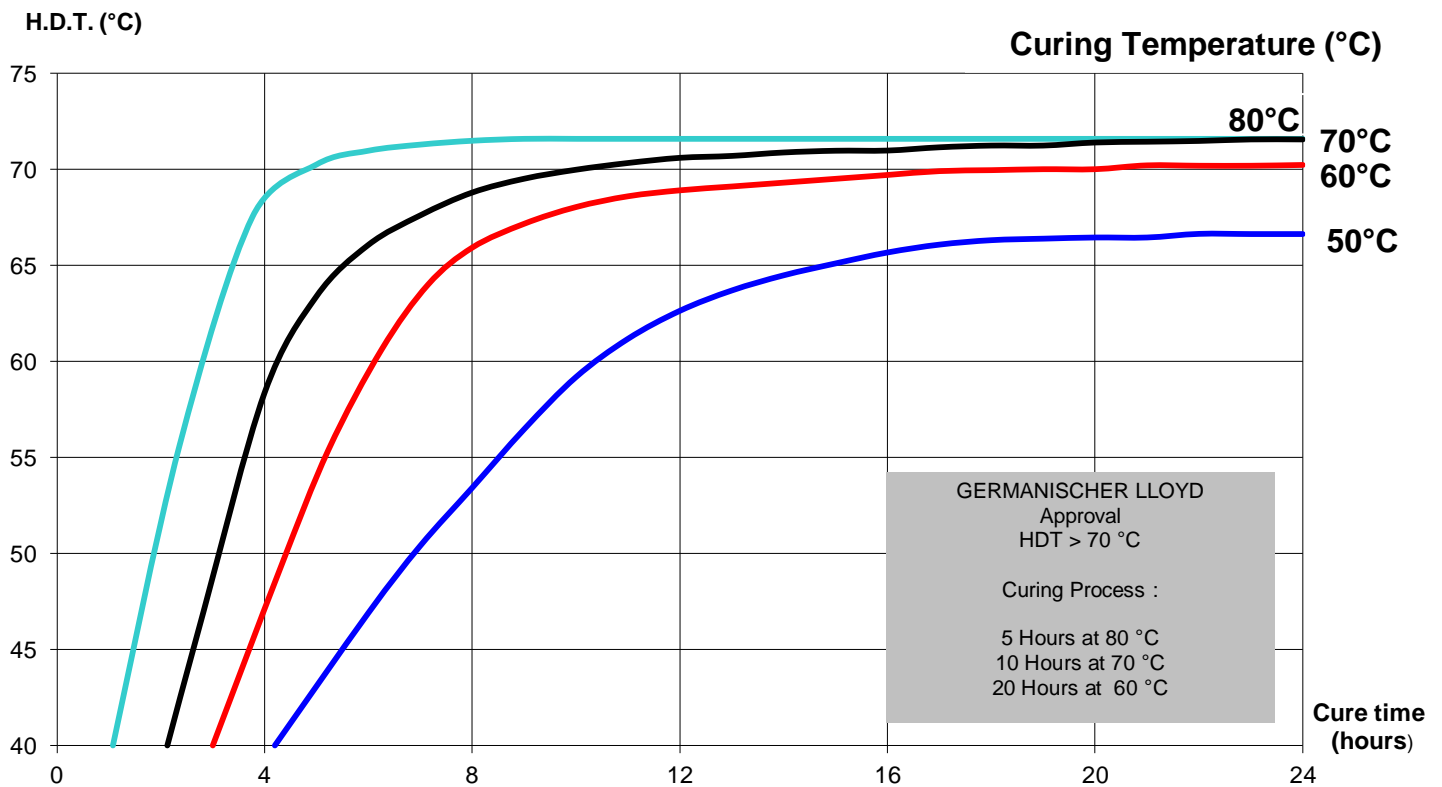
If our responsibility should nevertheless be involved, it would be, for all the damages, limited to the value of the goods supplied by us and implement by you. We guaranty the non-reproachable quality of our products, in the general context of sales and delivery.

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



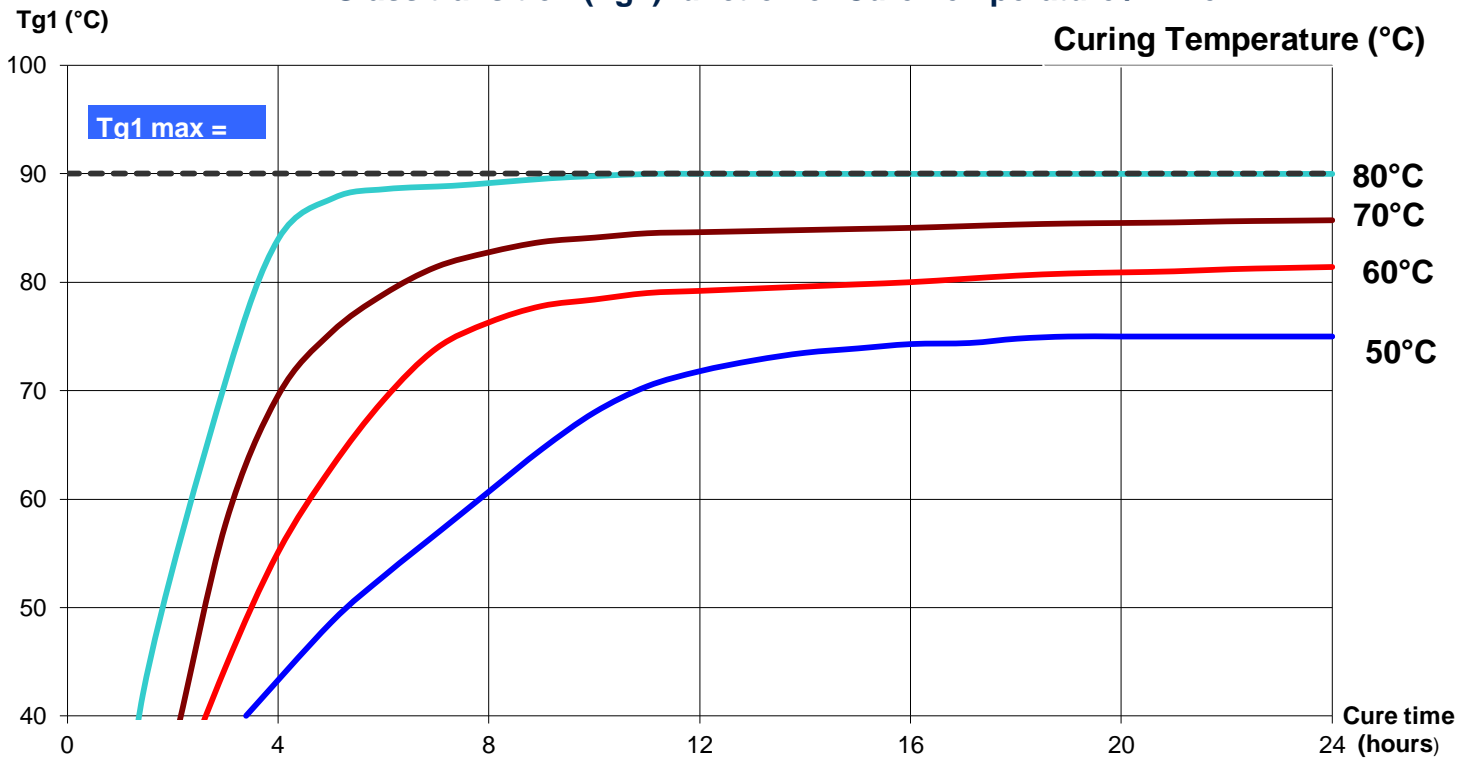
Glass transition measured by DSC according to standard ISO 11357-2 : 1999.

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



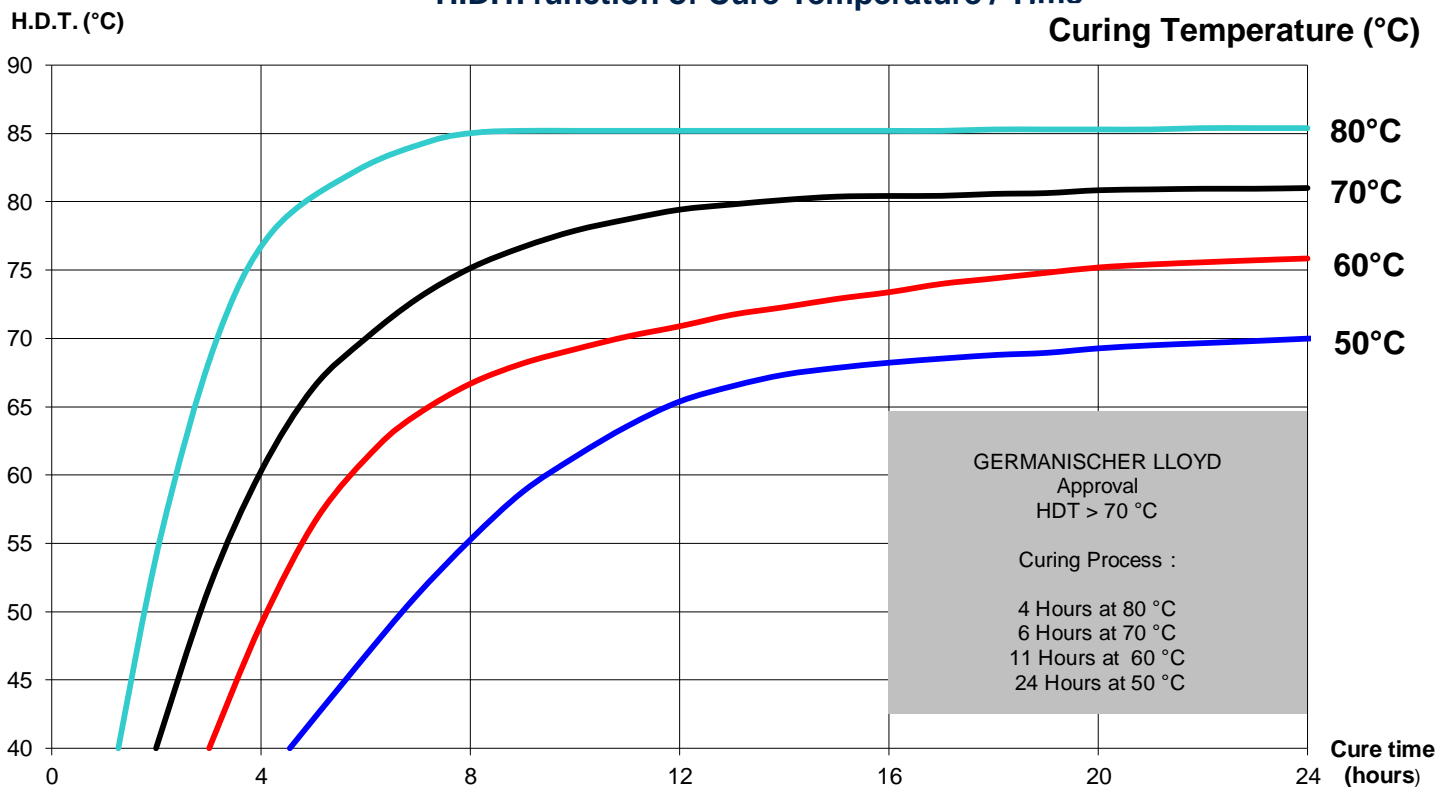
HDT : (Heat Deflection Temperature) according ISO 75-2 : 1993 (F)

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.

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



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