

# SR 1710 inj / SD 7820

## Epoxy system for infusion & injection processes

### Description

High temperature epoxy system specially formulated for oven temperature or autoclave conditions curing. It is used for production of high performance and high temperature resistant parts with outstanding mechanical properties in sectors such as motorsport, aerospace, and many more. It is also used for manufacturing of temperature resistant molds. It exhibits low viscosity which allows fast wetting of reinforcements, high mechanical properties, specially on shear strength and excellent adhesion properties to all types of fibers.

Very handy for most demanding applications, with a very long working time (~ 8 hours at 20° C). It can also be used to step up production to higher temperature resistance, as it can be demolded after a relatively low temperature postcuring. Heat treating to resist higher temperatures may very well come as a second step or at a later time. For this reason this system is very useful when we have to work with plugs or molds that do not resist high temperatures. The initial minimum curing before demolding is 12 h at 40° C or 6 hrs at 60° C. SR 1710 / SD 7820 has a high Tg of 130°C after post-cure, which allows the manufacturing of tooling by infusion.

### Epoxy resin SR 1710 Injection

Aspect / colour		liquid / yellow	
Viscosities (m.Pas)	@ 20 °C	1450 ± 150	Mobile LV3 60 rev / min ISO 2555
	@ 25 °C	870 ± 100	
Density (g/cm <sup>3</sup> )	à 20 °C	1.15 ± 0.010	Pycnometer NF EN ISO 2811-1
Storage	25 °C < T°C < 30 °C	6 months	
	10 °C < T°C < 20 °C	12 months	

### Hardener SD 7820

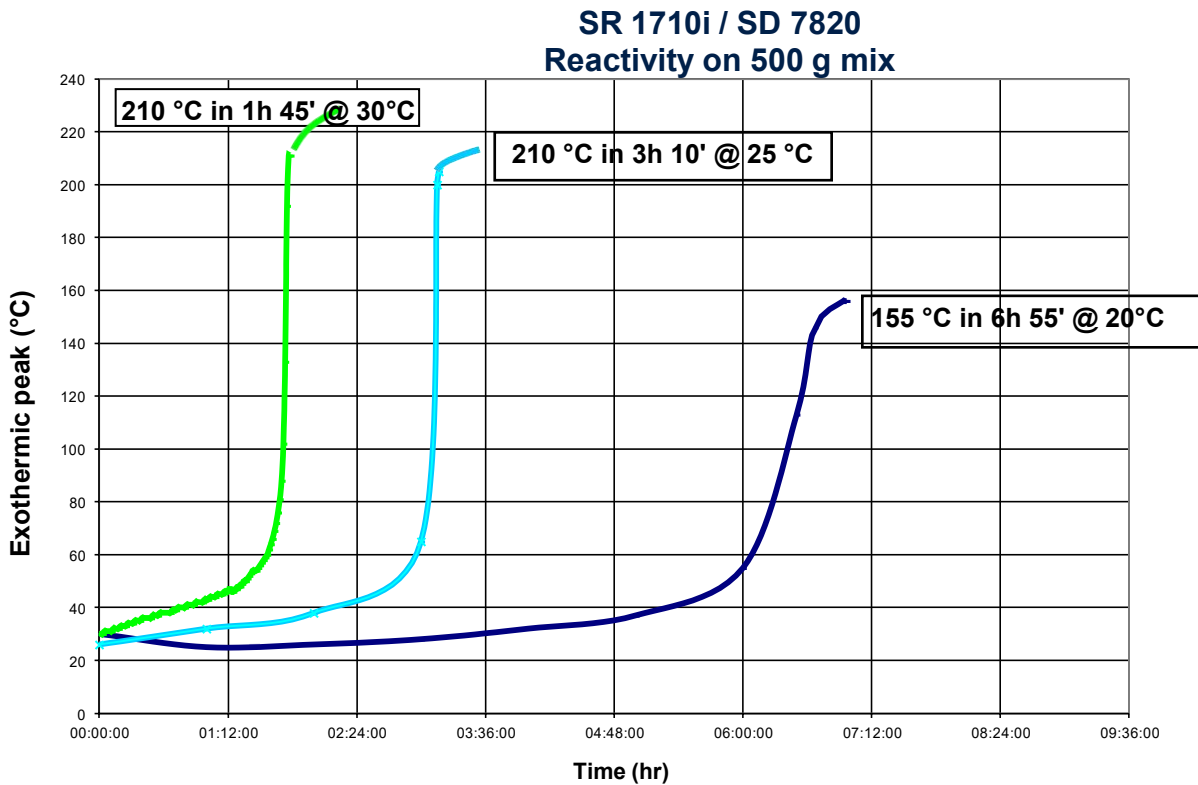
Reactivity type		<b>slow</b>	
Aspect / colour		Light yellow liquid	
Viscosities (m.Pas)	@ 20 °C	60 ± 4	Mobile LV2 60 rev / min ISO 2555
	@ 25 °C	48 ± 4	
Density (g/cm <sup>3</sup> )	à 20 °C	0.957 ± 0.010	Pycnometer NF ISO 2811-1

### Mix SR 1710 inj / SD 7820

Viscosity of the mix (mPas)	@ 20 °C	550
	@ 25 °C	350
	@ 30 °C	220
Mixing ratio by Weight		100 g / 36 g
Mixing ratio by Volume		100 ml / 43 ml

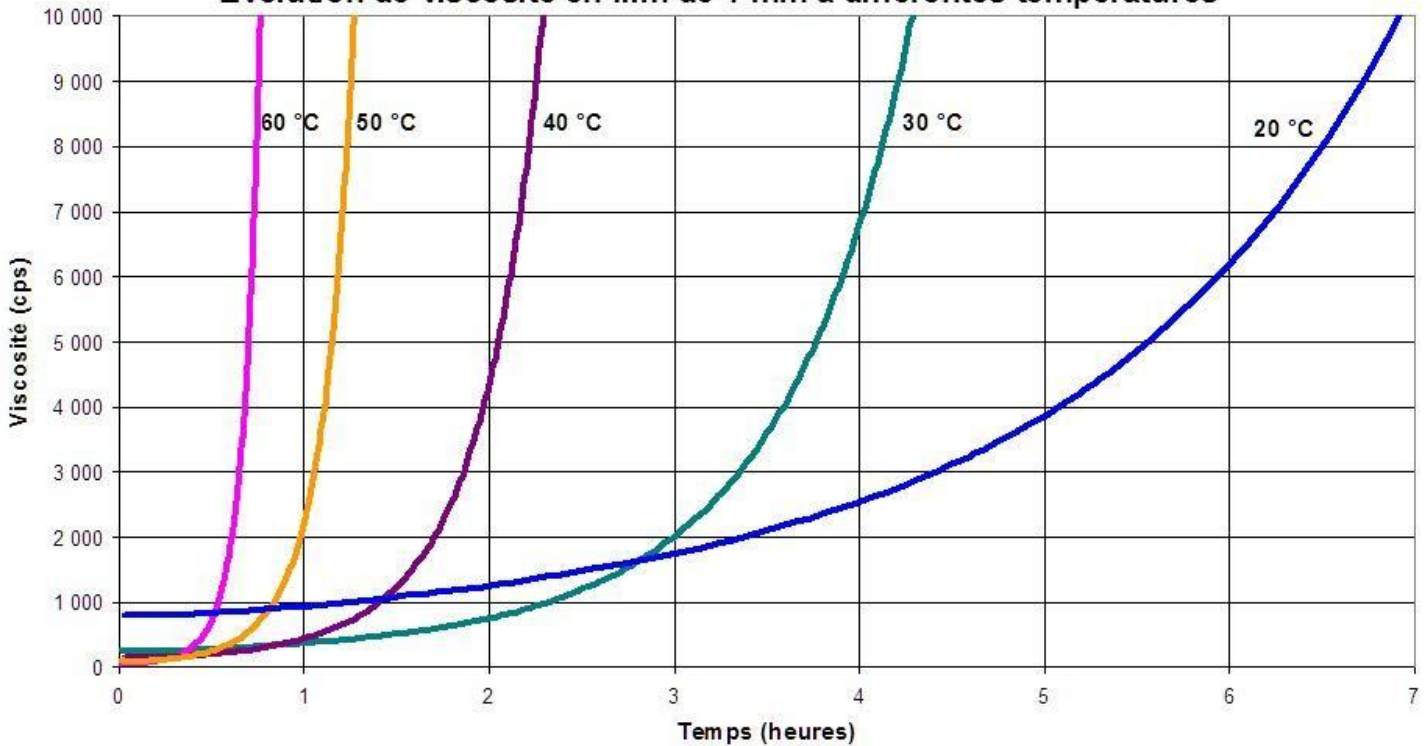
**Reactivity SR 1710 inj / SD 7820**

Exothermic peak Temperature (°C) on 500 g mélange:	
@ 20 °C	155
@ 25 °C	210
@ 30 °C	210
Time to reach the exothermic peak on 500 g mix	
@ 20 °C	6h 55'
@ 25 °C	3h 10'
@ 30 °C	1h 45'
Time to reach 50°C on 500 g mix	
@ 20 °C	5h 52'
@ 25 °C	2h 48'
@ 30 °C	1h 21'



**SR 1710 i / SD 7820**  
**100 / 36 g**

**Evolution de viscosité en film de 1 mm à différentes températures**



**Cure cycles**


Time to wait @ 20°C before post-cure *	20 hours
Minimum post-cure cycle	16 hours @ 60 °C
Advised post-cure cycle	24h @ amb. T°C + 8 h @ 60 °C + 4h @ 100 °C

\*Have to be respected in the case of thick laminate (> 3cm), in order to limit the risk of exothermic reaction

**Packaging (in Kg)**

Resin <b>SR 1710 Inj.</b>	Hardener <b>SD 7820</b>
224	8 x 9.9 or 3 x 26.2
28	10.08
12	4.32
5	1.8
2	0.72

## Mechanical properties on cast resin

		SR 1710 Inj. / SD 7820
Cure cycle		24h @ Ta + 8 h @ 60 °C + 4h @ 100 °C
<b>Tensile</b>		
Modulus of elasticity	N/mm <sup>2</sup>	2 780
Maximum resistance	N/mm <sup>2</sup>	78
Resistance at break	N/mm <sup>2</sup>	77
Elongation at max.load	%	5.3
Elongation at break	%	6.2
<b>Flexion</b>		
Modulus of elasticity	N/mm <sup>2</sup>	2 780
Maximum resistance	N/mm <sup>2</sup>	117
Elongation at max.load	%	7
Elongation at break	%	9
<b>Compression</b>		
Compressive yield strength	N/mm <sup>2</sup>	
Offset compressive yield	%	
<b>Charpy impact strength</b>	KJ/m <sup>2</sup>	17
<b>Glass transition</b>		
Tg1	°C	127
Tg1 max.	°C	130

## Mechanical properties of laminates based on SR 1710 / SD 7820

		<b>SR 1710 Inj / SD 7820</b>			
Cure cycles		24h @ amb.temp+16 h @ 60°C	24h @ amb.temp +8 h @ 60°C +4h @ 100°C	24h @ amb.temp + 16 h @ 60°C	24h @ amb.temp +8 h @ 60 °C +4h @ 100°C
<b>Laminate</b>					
Reinforcement		3300	3300	3300	3300
Number of layers		15	15	15	15
Process		Press	Press	Press	Press
Glass content ratio by weight (Wf)		74.5	74.5	65	65
<b>Flexion</b>					
Modulus of elasticity	N/mm <sup>2</sup>	25 750	21 380	21 690	20 110
Maximum resistance	N/mm <sup>2</sup>	654	620	559	514
Elongation at maximum load	%	2.96	3.32	2.91	2.85
<b>Shear strength</b>					
Shear stress	N/mm <sup>2</sup>	57	57	58	57
<b>Charpy impact strength</b>					
	KJ/m <sup>2</sup>	201	194	196	216
<b>Water absorption</b>					
	%poids	0.08	0.08	0.15	0.09
<b>Glass transition</b>					
Tg 1	°C	88	127	88	127

Tests carried out in accordance with AFNOR norms:

Cast resin :

Tension : NF T51-034

Flexion : NF T51-001

Compression: NF T 51-101

Charpy NF T51-501

Impact Strength

Glass transition: DSC Tg 1 = 1° pt  
@ 10°C / mn

Laminate :

Flexion : NF T57-105

Charpy Impact NF T57-108

Strength

Shear strength 3 NF T 57-104

Pts flexion

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 Tg 1 = 1° pt @ 10°C / mn

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

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