SR 8100

Epoxy systems 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 very large parts.
The cured system gives a temperature resistance up to 80°C (Tg onset)
The hardeners SD 4770 and 4771 are designed for very thick fibers laminates

SR 8100 is a clear resin with very low viscosity..
Can be used with a selection of hardeners to match your requirements.

Epoxy resin SR 8100

Aspect		Clear liquid
Color Gardner		2 maximum
Viscosity	@ 15 °C	2 370
(± 20 % mPa.s)	@ 20 °C	1 320
	@ 25 °C	790
	@ 30 °C	490
	@ 40 °C	220
Density	@ 20 °C	
Pyconometer		1.158
Helium		1.161
Refractive index	@ 25 °C	1.5540
Storage stability		24 Months @ ambiant

Hardeners SD 882x SD 477x

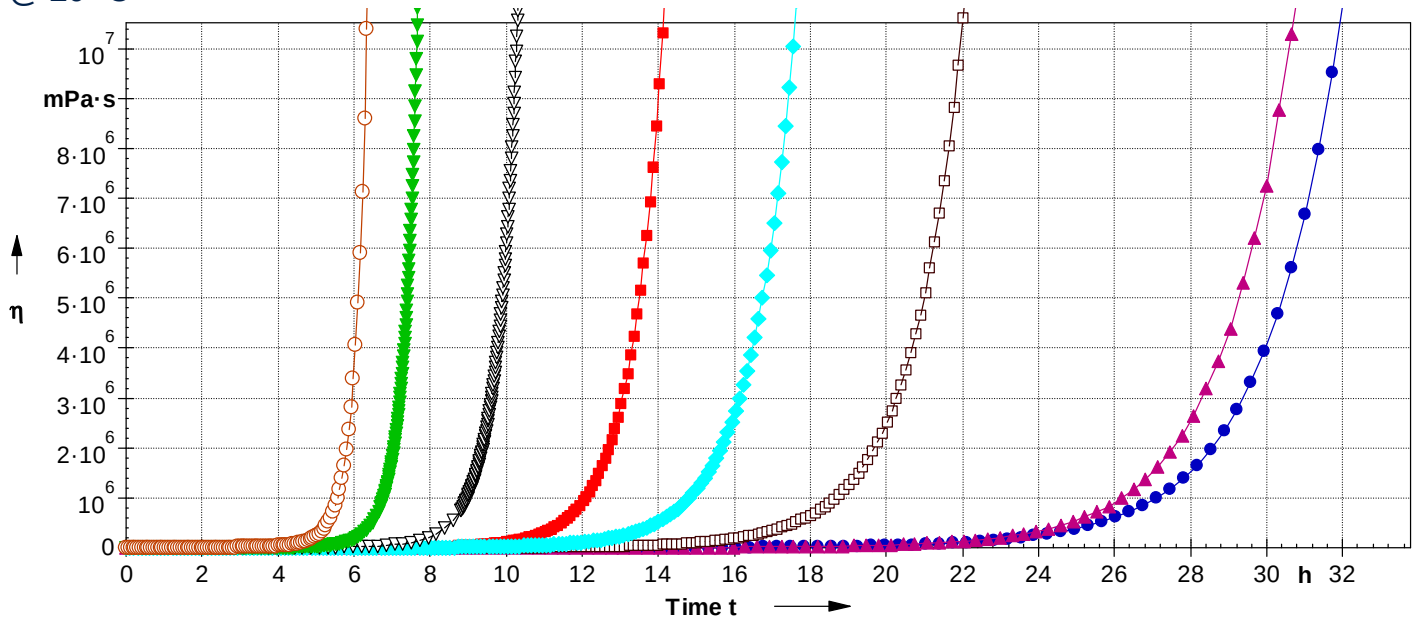
Reference		SD 8825.2	SD 8824	SD 8823	SD 8822	SD 4772	SD 4771	SD 4770	SD 1616.5
Reactivity type		**Fast**	**Standard**		**Slow**		**Ultra slow**	**Mega slow**	
Aspect / colour		Light yellow liquid							
Color Gardner		3 maximum	4 maximum	3 maximum	5 maximum	3 maximum			2 maximum
Viscosity	@ 15 °C	9	7	12	27	13			15
± 20 % mPa.s	@ 20 °C	7	6	9	20	11			12
	@ 25 °C	6	5	8	16	9			10
	@ 30 °C	5	4	7	13	7			8
	@ 40 °C	4	3	5	9	5			6
Carbon Green content	%	none							
Storage stability	AT	24 months Hardeners react with carbon dioxide and moisture. Keep tightly closed packaging, minimize maximum contact with the air.							
Density ± 0.01	@ 20 °C	0.915	0.944	0.942	0.935	0.927	0.944	0.944	0.948
Refractive index	@ 25 °C	1.4785	1.4982	1.4844	1.4712	1.4822	1.4594	1.4604	1.4597

SR 8100 / SD 882x SD 477x SD 1616.5 Mixes

References		SD 8825.2	SD 8824	SD 8823	SD 8822	SD 4772	SD 4771	SD 4770	E 1616.5
Mixing ratio by weight		**100 / 22**	**100 / 22**	**100 / 26**	**100 / 31**	**100 / 29**			**100 / 31**
Mixing ratio by volume		**100 / 28**	**100 / 27**	**100 / 32**	**100 / 39**	**100 / 36**			**100 / 38**
Initial mix viscosities	@ 20 °C @ 30 °C	405 195	200 95	260 130	400 225	330 150	385 155	200 145	240 100
Time to reach 300 cps ’optimal infusion time’’	@ 20 °C @ 30 °C	- 35’	45’ 56’	17’ 55’	- 25’	- 53’	- 1 h 40 ‘	2 h 10 ’ 1 h 55 ‘	1 h 40 ’ 2 h 55 ‘

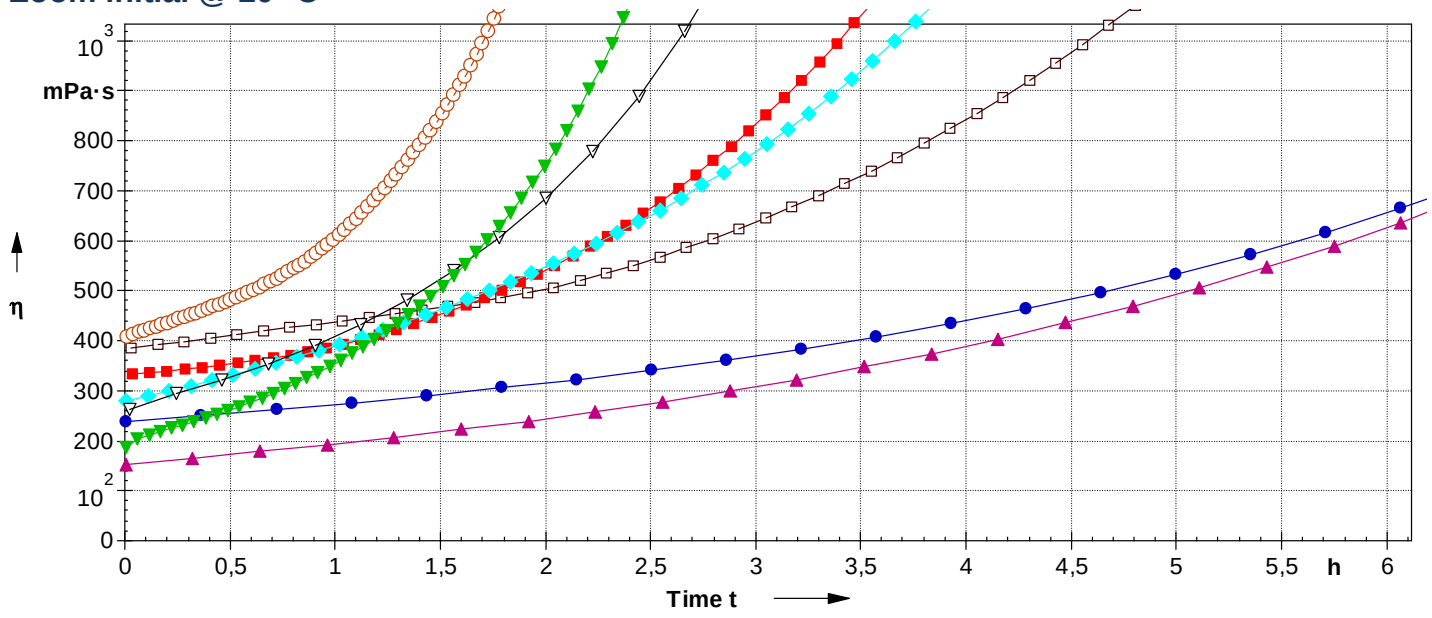
Viscosities increase on 1 mm film thickness

@ 20 °C



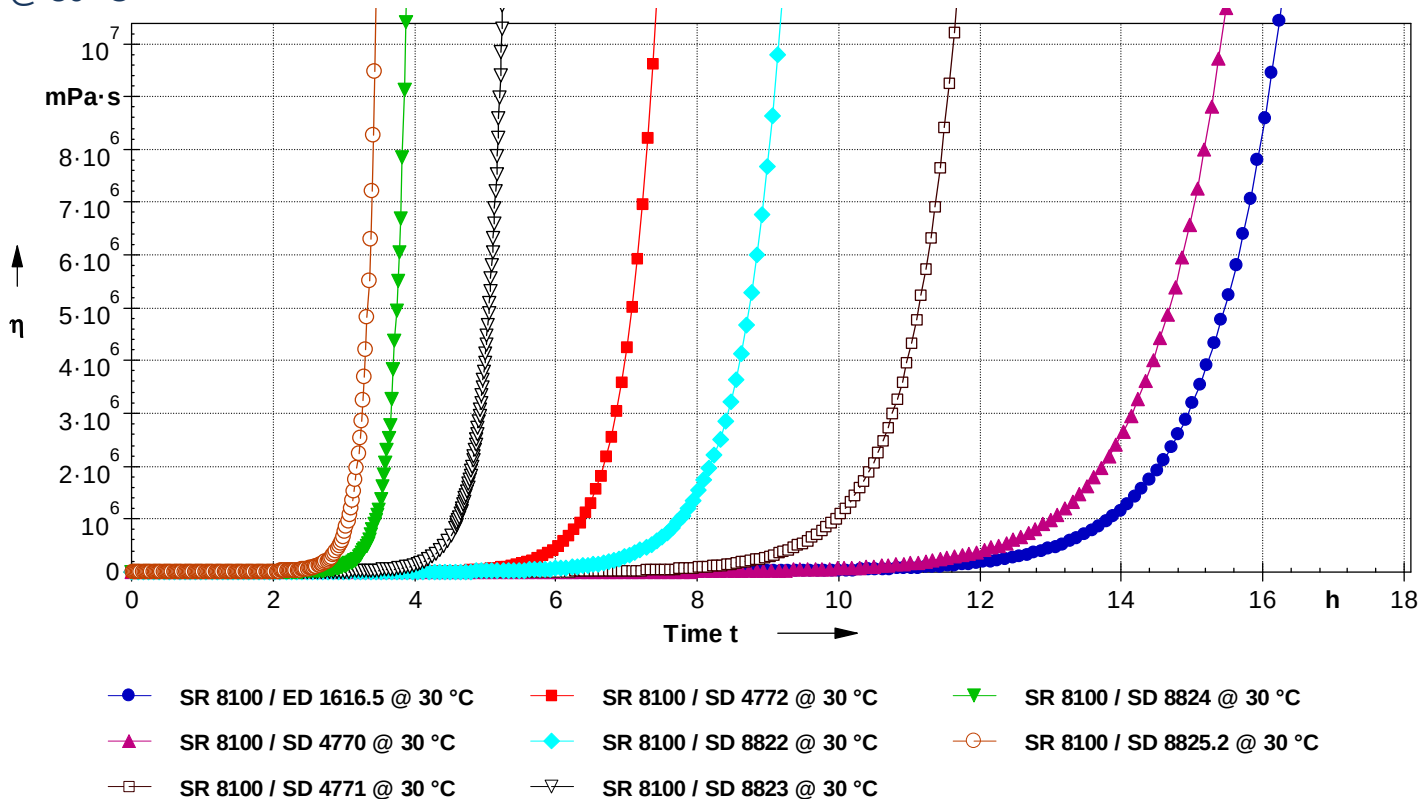
SR 8100 / ED 1616.5 @ 20 °C
SR 8100 / SD 4772 @ 20 °C
SR 8100 / SD 8824 @ 20 °C
SR 8100 / SD 4770 @ 20 °C
SR 8100 / SD 8822 @ 20 °C
SR 8100 / SD 8825.2 @ 20 °C
SR 8100 / SD 4771 @ 20 °C
SR 8100 / SD 8823 @ 20 °C

Zoom initial @ 20 °C

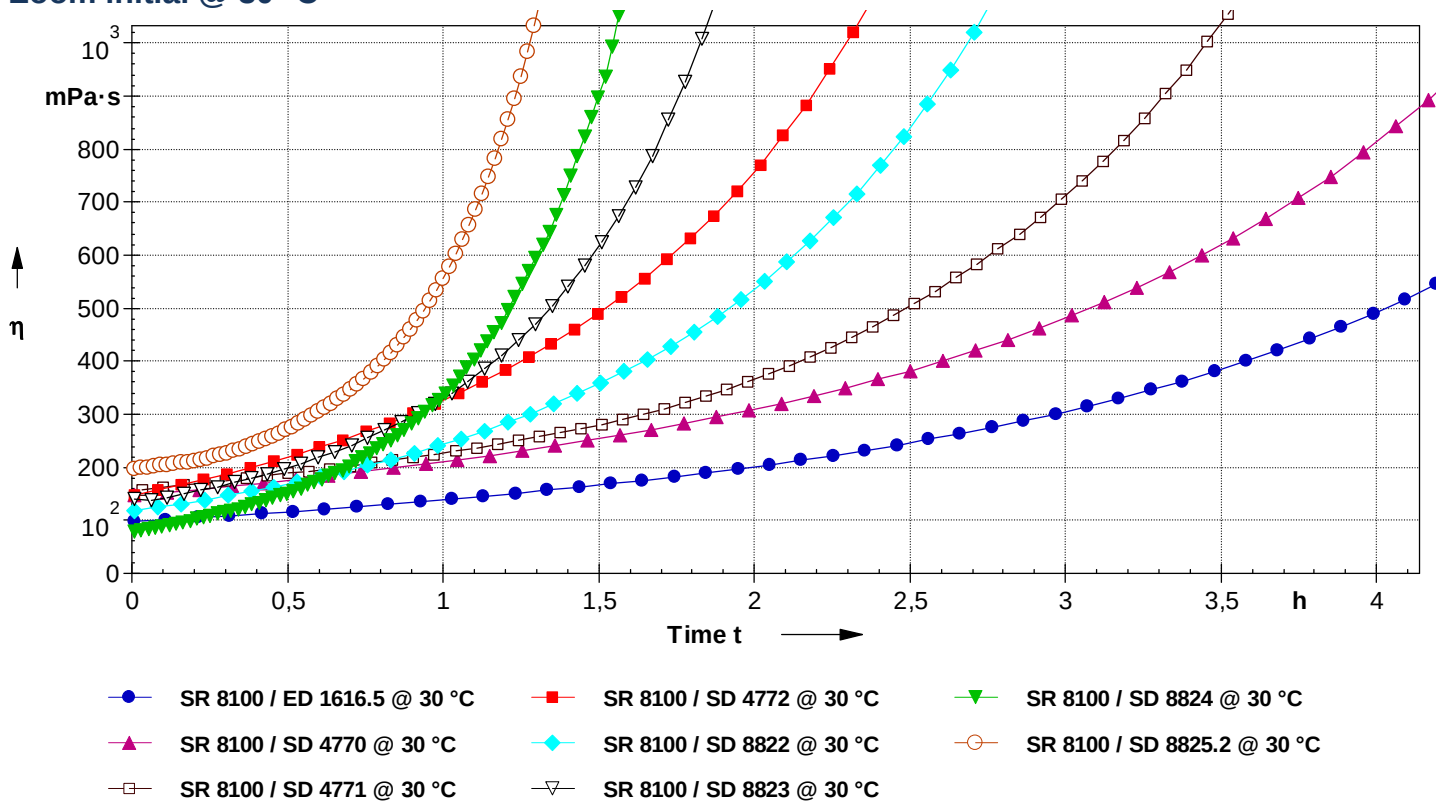


SR 8100 / ED 1616.5 @ 20 °C
SR 8100 / SD 4772 @ 20 °C
SR 8100 / SD 8824 @ 20 °C
SR 8100 / SD 4770 @ 20 °C
SR 8100 / SD 8822 @ 20 °C
SR 8100 / SD 8825.2 @ 20 °C
SR 8100 / SD 4771 @ 20 °C
SR 8100 / SD 8823 @ 20 °C

@ 30 °C



Zoom initial @ 30 °C



Mechanical properties on cast resin

		SR 8100 / SD 8825.2			SR 8100 / SD 8824		
Curing cycle →		AT + 24 hrs 40 °C	AT + 16 hrs 60 °C	AT + 8 hrs 80 °C	AT + 24 hrs 40 °C	AT + 16 hrs 60 °C	AT + 8 hrs 80 °C
Tension							
Modulus of elasticity	N/mm^2	2900	2800	2700	2900	2850	2800
Maximum resistance	N/mm^2	72	71	69	60	59	65
Resistance at break	N/mm^2	67	63	64	50	50	54
Elongation at max load	%	3.9	4.5	5.3	3.2	3.9	4.7
Elongation at break	%	4.6	7.1	7.9	3.8	5.9	9.3
Flexion							
Modulus of elasticity	N/mm^2	3100	2800	2700	2970	2850	2800
Maximum resistance	N/mm^2	118	115	113	108	106	104
Elongation at max load	%	5.1	6.0	6.4	4.9	5.7	5.7
Elongation at break	%	11.5	11.9	11.6	11.8	12.0	13.6
Shear Strenght							
Maximum resistance	N/mm^2	44	46	45	42	43	41
Compressive							
Compressive yield strength	N/mm^2	97	96	94	90	89	86
Offset compressive yield	%	11.5	14.5	15.7	11.8	15.9	13.6
Impact Choc Charpy							
Resilience	KJ/m^2	90	83	85	52	52	50
Glass Transition							
Tg1 onset	**°C**	72	82	86	64	77	78
Tg1 onset maximum	**°C**			89			81

		SR 8100 / SD 8823			SR 8100 / SD 8822		
Curing cycle →		AT + 24 hrs 40 °C	AT + 16 hrs 60 °C	AT + 8 hrs 80 °C	AT + 24 hrs 40 °C	AT + 16 hrs 60 °C	AT + 8 hrs 80 °C
Tension							
Modulus of elasticity	N/mm^2	3200	2900	2900	3000	2850	2800
Maximum resistance	N/mm^2	66	74	71	70	71	73
Resistance at break	N/mm^2	66	71	66	63	61	70
Elongation at max load	%	2.6	4.4	4.7	3.3	4.1	5.3
Elongation at break	%	2.6	5.0	6.4	3.8	5.5	6.3
Flexion							
Modulus of elasticity	N/mm^2	3100	3000	2900	3390	3060	2800
Maximum resistance	N/mm^2	114	117	115	115	120	119
Elongation at max load	%	4.6	5.4	5.8	3.9	5.6	6.2
Elongation at break	%	15.2	11.5	11.1	5.8	9.0	9.3
Shear Strenght							
Maximum resistance	N/mm^2	47	47	46	47	47	46
Compressive							
Compressive yield strength	N/mm^2	102	99	96	112	111	105
Offset compressive yield	%	12.6	12.5	13.2	9.8	9.7	7.9
Impact Choc Charpy							
Resilience	KJ/m^2	97	93	55	26	35	26
Glass Transition							
Tg1 onset	**°C**	64	76	88	68	78	87
Tg1 onset maximum	**°C**			88			90

		SR 8100 / SD 4771			SR 8100 / SD 4772		
Curing cycle →		AT + 24 hrs 40 °C	AT + 24 hrs 40 °C	AT + 24 hrs 40 °C	AT + 24 hrs 40 °C	AT + 16 hrs 60 °C	AT + 8 hrs 80 °C
Tension							
Modulus of elasticity	N/mm^2	3400	3250	3050	3150	3050	3050
Maximum resistance	N/mm^2	78	76	71	72	76	74
Resistance at break	N/mm^2	73	71	69	72	73	72
Elongation at max load	%	3.6	4.4	4.5	3.4	4.2	4.3
Elongation at break	%	4.0	5.3	5.4	3.4	5.2	5.3
Flexion							
Modulus of elasticity	N/mm^2	3360	2900	3000	3200	3200	3100
Maximum resistance	N/mm^2	109	105	104	118	128	125
Elongation at max load	%	4.4	5.4	5.4	4.7	5.5	5.5
Elongation at break	%	15.3	8.1	8.6	9.4	9.2	6.5
Shear Strenght							
Maximum resistance	N/mm^2	47	49	48	48	49	48
Compressive							
Compressive yield strength	N/mm^2	112	108	105	104	102	100
Offset compressive yield	%	9	10	11	12.3	12.3	13.6
Impact Choc Charpy							
Resilience	KJ/m^2	26	34	34	76	68	48
Glass Transition							
Tg1 onset	**°C**	65	80	83	57	76	77
Tg1 onset maximum	**°C**			86			75

		SR 8100 / SD 4770			SR 8100 / SD 1616.5		
Curing cycle →		AT + 24 hrs 40 °C	AT + 16 hrs 60 °C	AT + 8 hrs 80 °C	AT + 24 hrs 40 °C	AT + 16 hrs 60 °C	AT + 8 hrs 80 °C
Tension							
Modulus of elasticity	N/mm^2	3000	3150	2850	3000	2850	2800
Maximum resistance	N/mm^2	73	75	71	64	64	65
Resistance at break	N/mm^2	67	70	67	57	58	57
Elongation at max load	%	3.9	4.5	4.7	3.4	4.0	4.2
Elongation at break	%	4.5	5.7	6.3	4.4	5.5	7.4
Flexion							
Modulus of elasticity	N/mm^2	3250	3100	2900	2950	2850	2850
Maximum resistance	N/mm^2	107	107	103	103	105	106
Elongation at max load	%	4.4	5.1	5.4	4.7	5.3	5.3
Elongation at break	%	12.7	11.5	8.1	No break	9.8	14.2
Shear Strenght							
Maximum resistance	N/mm^2	48	48	47	44	44	43
Compressive							
Compressive yield strength	N/mm^2	105	104	104	92	88	86
Offset compressive yield	%	11	12	13	11.5	11.7	14.2
Impact Choc Charpy							
Resilience	KJ/m^2	21	25	35	76	59	73
Glass Transition							
Tg1 onset	**°C**	65	76	84	58	70	70
Tg1 onset maximum	**°C**			86			74

Measures undertaken according to the following norms:

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

Tension:	*ISO 527 - 2*
Flexion:	*ISO 178*
Charpy impact strength:	*NF T 51-035*
Shear Strength:	*ASTM D 732 - 93*
Compression:	*ISO 604*
Water absorption:	*Internal. Polymerization according to cycle, machining, weighing, time spent in distilled water at 70 °C / 48 hours, weighing 1 hour after emerging,*

Glass transition DSC: *ISO 11357-2: 1999 -5°C to 180 °C under nitrogen gas*
T_{G1} or Onset: 1st point at 20 °C/min *T_{G1} maximum or Onset: second passage*

Glass transition DTMA: *ISO 11357-1 - T_G onset G'* *Temperature ramp 0 °C to 180 °C @ 2°C/min*
ASTM D4065 - T_G peak G''

Physical tests according standard:

Gardner color:	*NF EN ISO 4630*	*Visual method*
Refractive index:	*NF ISO 280*	
Viscosity:	*NF EN ISO 3219*	*Rheometer 50 mm, shear 10 s^{-1}*
Density:	*NF EN ISO 2811-1*	*Pycnometer*
Gel time:	*Cross G' G''*	*Rheometer CP50 - Shear rate 10 s^{-1}*
Green Carbone content:	*ASTM D6866 or XP CEN/TS 16640 Avril 2014*	

AT: *Ambiant temperature*

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