

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 (± 20 % mPa.s)	@ 15 °C	2 370
	@ 20 °C	1 320
	@ 25 °C	790
	@ 30 °C	490
	@ 40 °C	220
Density Pyconometer Helium	@ 20 °C	1.158 1.161
	@ 25 °C	1.5540
Storage stability		24 Months @ ambient

Hardeners SD 882x SD 477x

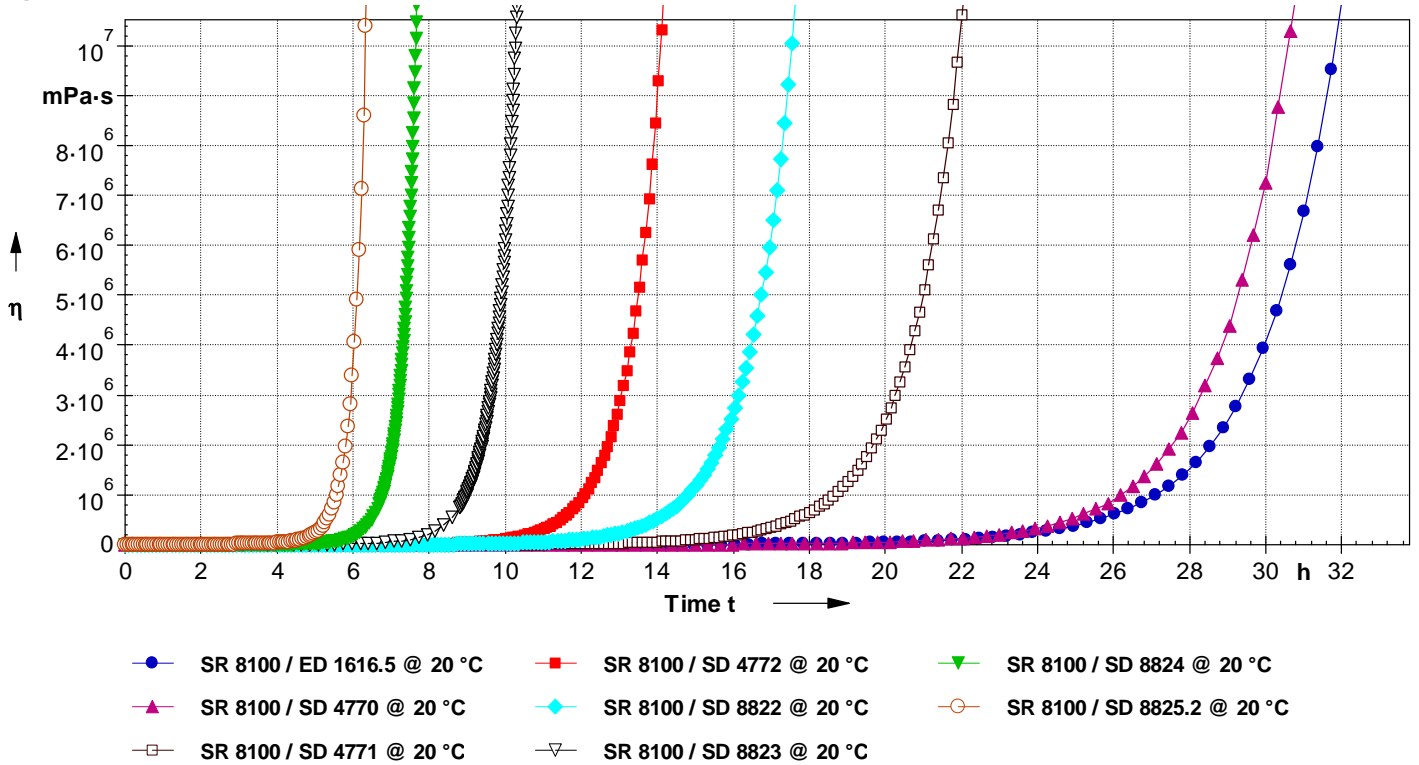
Reference	SD 8825.2	SD 8824	SD 8823	SD 8822	SD 4772	SD 4771	SD 4770	SD 1616.5	
Reactivity type	Fast	Standard		Slow		Ultra slow	Mega slow		
Aspect / colour	Light yellow liquid								
Color Gardner	3 maximum	4 maximum	3 maximum	5 maximum	3 maximum			2 maximum	
Viscosity ± 20 % mPa.s	@ 15 °C	9	7	12	27	13		15	
	@ 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

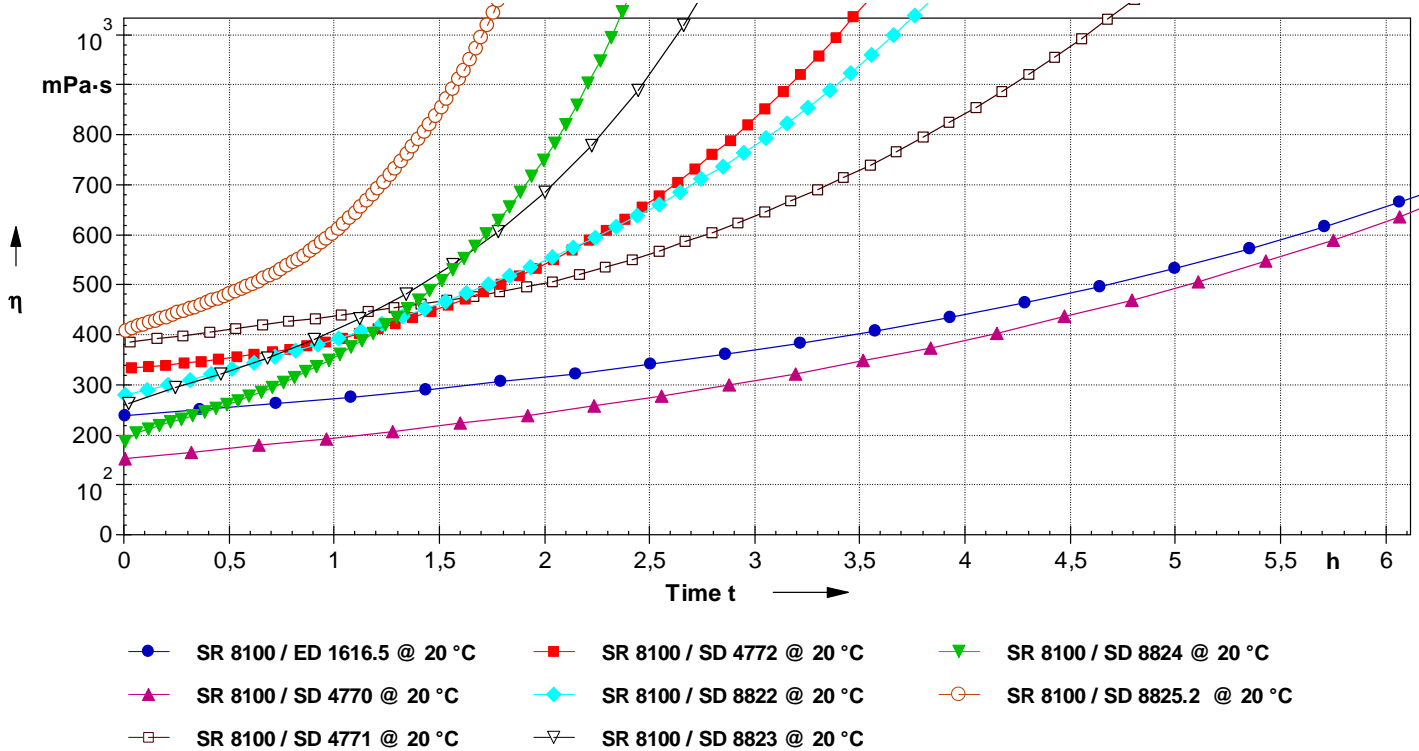
References		SD 8825.2	SD 8824	SD 8823	SD 8822	SD 4772	SD 4771	SD 4770	E 1616.5
Mixing ratio by weight		100 / 22	100 / 22	100 / 26	100 / 31	100 / 29			100 / 31
Mixing ratio by volume		100 / 28	100 / 27	100 / 32	100 / 39	100 / 36			100 / 38
Initial mix viscosities	@ 20 °C	405	200	260	400	330	385	200	240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

Viscosities increase on 1 mm film thickness

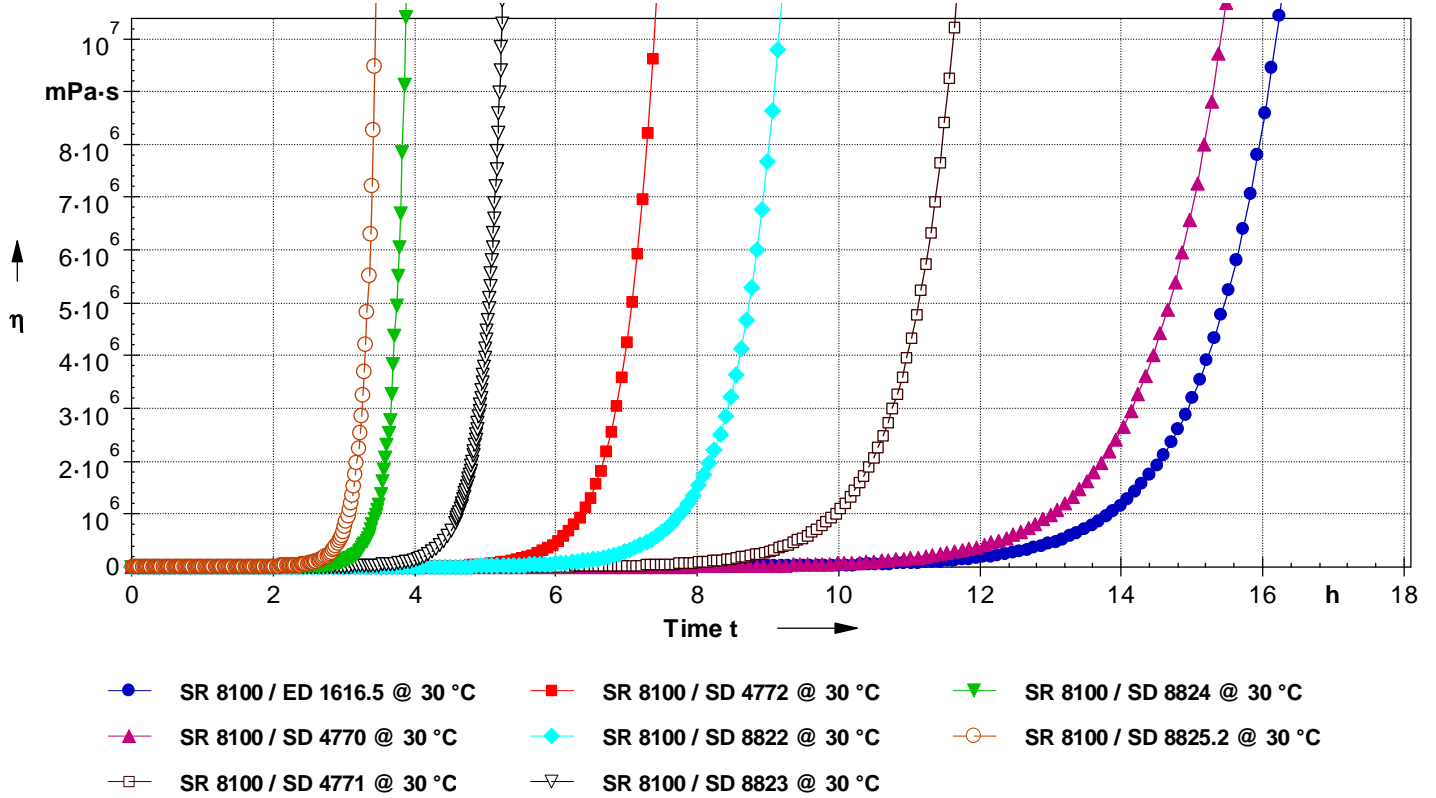
@ 20 °C



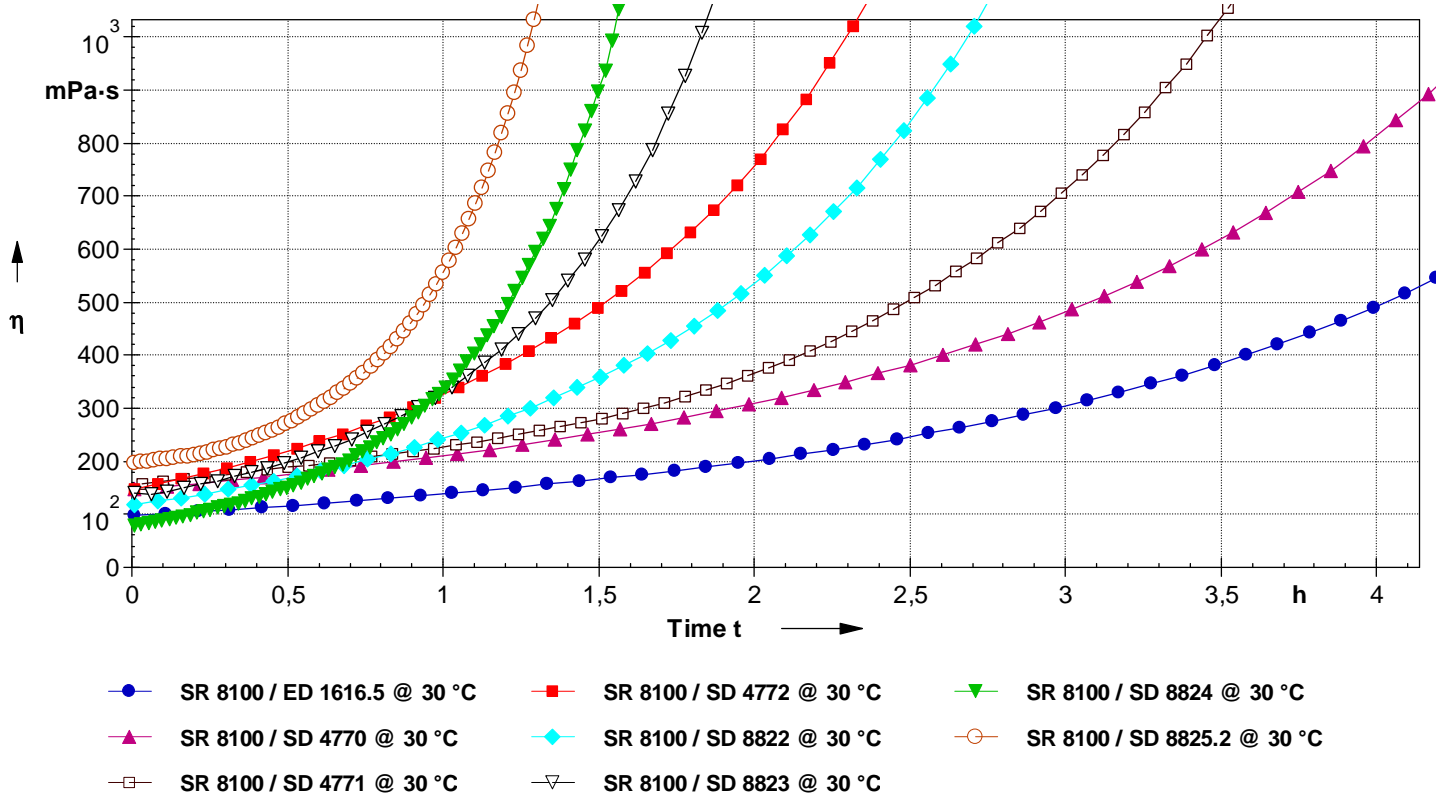
Zoom initial @ 20 °C



@ 30 °C





Zoom initial @ 30 °C




Mechanical properties on cast resin

Curing cycle		SR 8100 / SD 8825.2			SR 8100 / SD 8824		
		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		
		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
Curing cycle							
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		
		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
Curing cycle							
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		
		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
Curing cycle							
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: Ambient temperature

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