SR 8160 / SD 815 Bx
Flexible epoxy systems

- Clear resin, contains no thinner nor plasticizer
- Very high elongation at break and high absorption of shocks
- Low viscosity of the resin and hardener mixes
- Unfilled and translucent
- Advantages compared to polyurethane:
    * Does not foam when in contact with humidity
    * Keeps its memory of moulded shape

Hardeners SD 815 Bx:

SD 815 B2 and B3:	Standard hardeners
SD 815 B4 :	Slow hardener
SD 815 B7:	Super slow, low Tg

Profile:
Cure at ambiant temperature and post cure at 60 to 100 °C

Applications:
- Hand laminating, infusion, adhesive, tooling, casting, laminates...
- Parts subject to vibrations, shocks, low temperature
- Flexible laminates: Body parts for automobiles and motorcycles...
- Casting and inclusion (degassing under vacuum)
- Ballistic laminates

Epoxy resin SR 8160

Appearance		Viscous liquid
Chemical nature		Epoxy resin. Reaction product between bisphenol and epichlorhydrine.
Storage		2 years Cristalisation free
Color gardner		3 maximum
Density	@ 20 °C	1.144
Viscosities (m.Pas ± 20 %)	@ 15 °C @ 20 °C @ 25 °C @ 30 °C @ 40 °C	14 400 7 800 3 900 2 200 850
Refractive index	@ 25 °C	1.5347

Base Hardeners SD 815 Bx :

		SD 815 B2	SD 815 B3	SD 815 B4	SD 815 B7
Aspect / Color		Liquid / Clear to yellow			
Reactivity levels		Standard	Standard	Slow	Ultra slow
Viscosities (m.Pas ± 20 %)	@ 15 °C @ 20 °C @ 25 °C @ 30 °C	18 15 12 10	28 22 17 13	30 24 19 15	35 28 22 12
Density ± 0.01	@ 20 °C	0.97	0.98	0.98	0.97
Refractive Index	@ 25 °C	1.4702	1.4727	1.4670	1.4465
Storage & stability		2 years Hardeners reacts with carbon dioxide and moisture. Keep tightly closed packaging, minimize maximum contact with the air.			

SR 8160 / SD 815.Bx Mixes :

		SR 8160/ SD 815 B2	SR 8160 / SD 815.B3	SR 8160 / SD 815 B4	SR 8160 SD 815 B7
Mixing ratio:					
Quantity by weigh		100 / 18	100 / 20	100 / 20	100 / 37
Quantity by volume		100 / 21	100 / 24	100 / 24	100 / 44
Viscosities mixes					
(m.Pas ± 20 %)	@ 20 °C	2 100	2 300	2 750	1300
	@ 30 °C	660	880	1 100	490
	@ 40 °C	3600	310	500	260
	@ 50 °C	/	/	/	120
	@ 60 °C	/	/	/	80
	@ 100 °C	/	/	/	17
	@ 120 °C	/		/	10

Reactivities on 500 g mix SR 8160 / SD 815 Bx :

	SR 8160 / SD 815 B2	SR 8160 SD 815 B3	SR 8160 SD 815 B4	SR 8160 SD 815 B7
Exothermic temperature (°C) :				
@ 20 °C	45	50	/	/
@ 30 °C	130	120	45	/
@ 40 °C	160	155	80	/
Time taken to achieve exotherm :				
@ 20 °C	2 hrs 20 min	2 hrs	/	/
@ 30 °C	1 hrs 40 min	1 hrs 35 min	4 hrs	/
@ 40 °C	1 hr	55 min	2 hrs 45 min	/
Time taken to reach 50 °C :				
@ 20 °C	/	/	/	/
@ 30 °C	35 min	30 min	/	/
@ 40 °C	20 min	15 min	1 hr 10 min	/

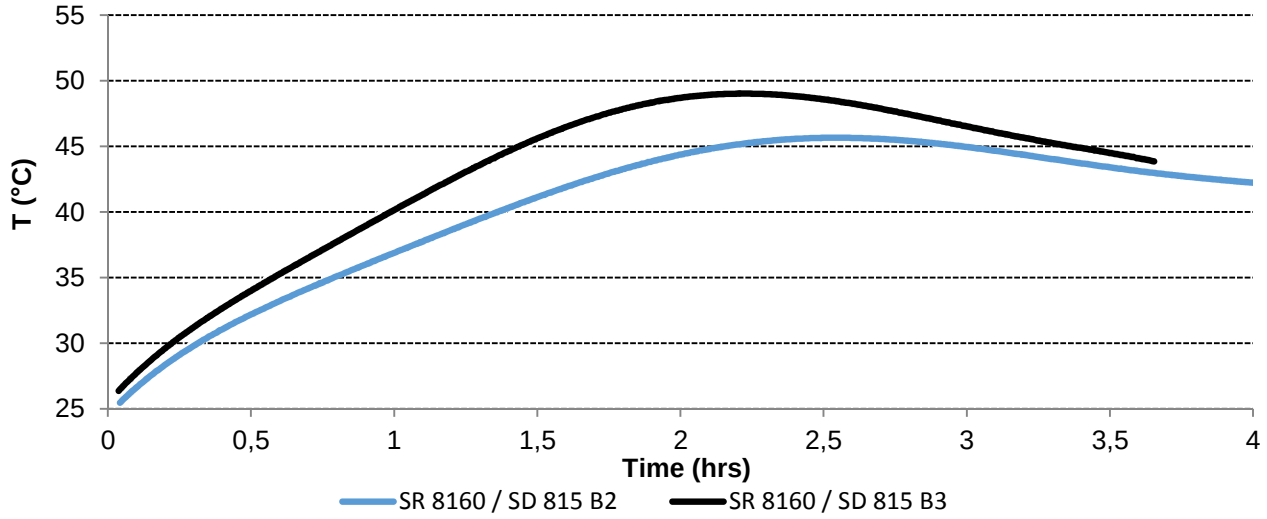
Curing cycle

12 to 24 hrs @ 60 °C is need to achieved full cured

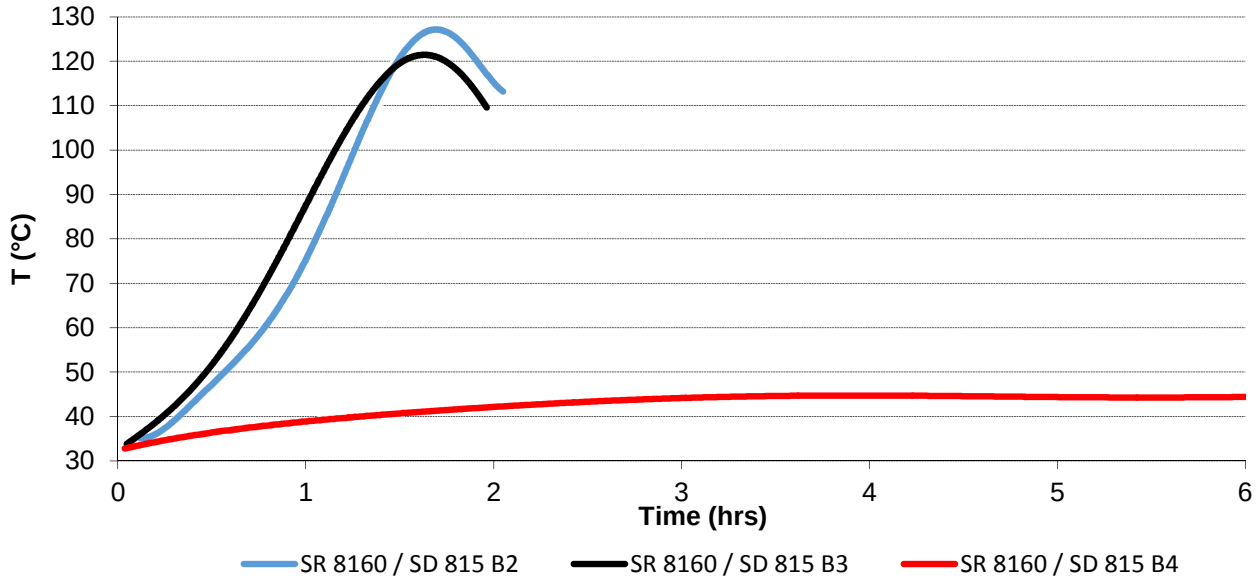
Fast curing cycle:

45 ' @ 120 °C
2 hrs @ 100 °C

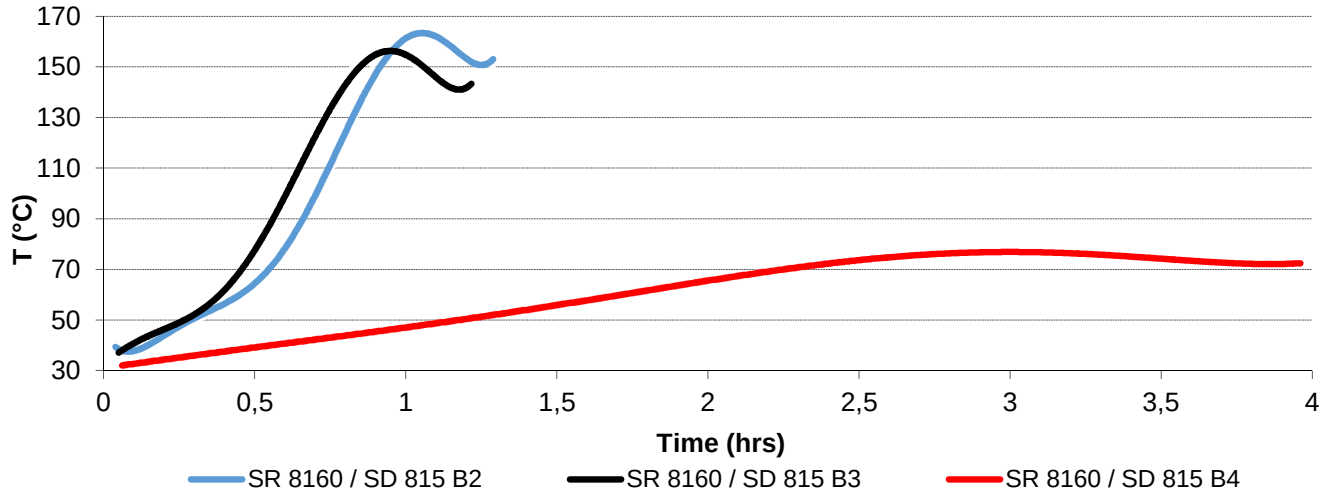
Pot Life 500 g @ 20 °C



Pot Life 500 g @ 30°C

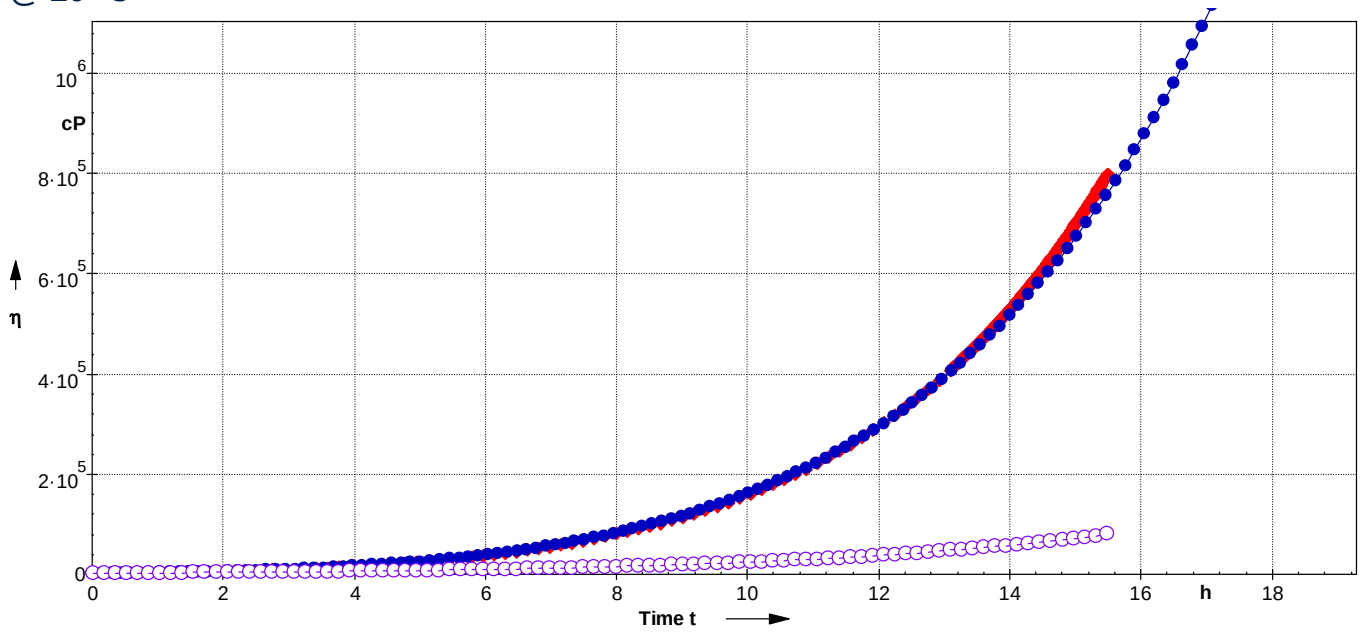


Pot Life 500 g @ 40°C



SR 8160 / SD 815 Bx Reactivity – 1 mm film viscosity evolution with the temperature

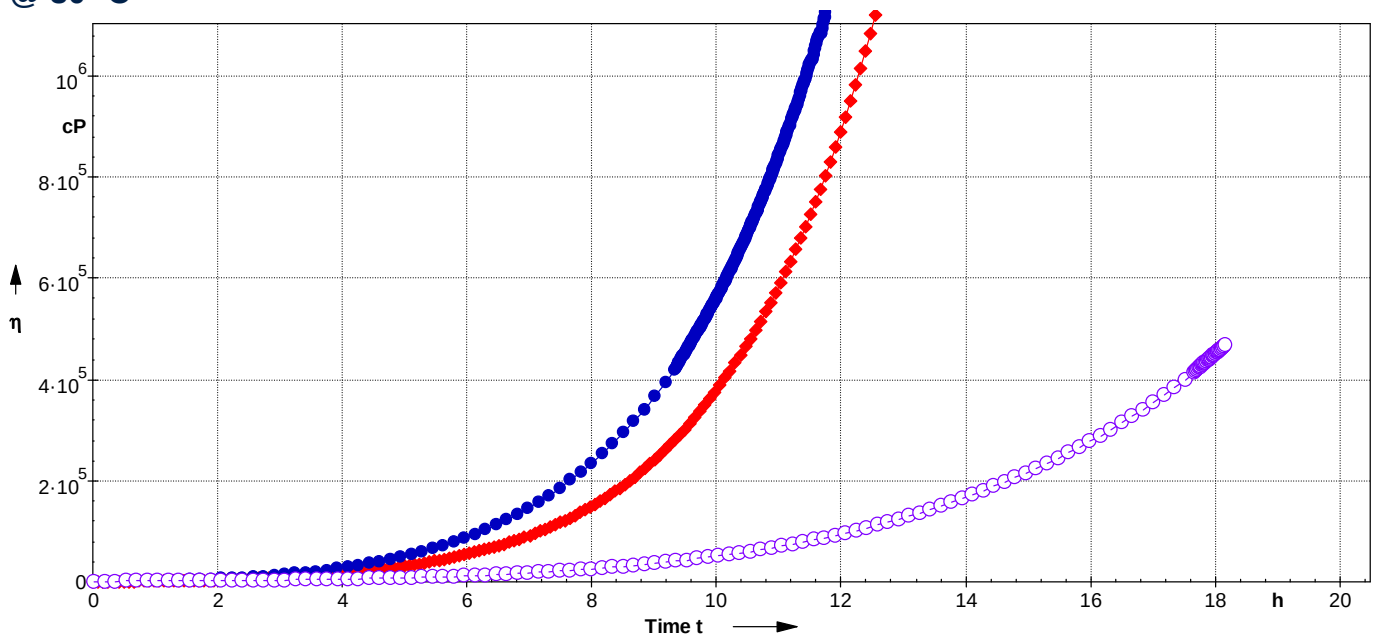
@ 20 °C



SR 8160 / SD 815 B2 @ 20 °C **SR 8160 / SD 815 B4 @ 20 °C**

SR 8160 / SD 815 B3 @ 20 °C E2

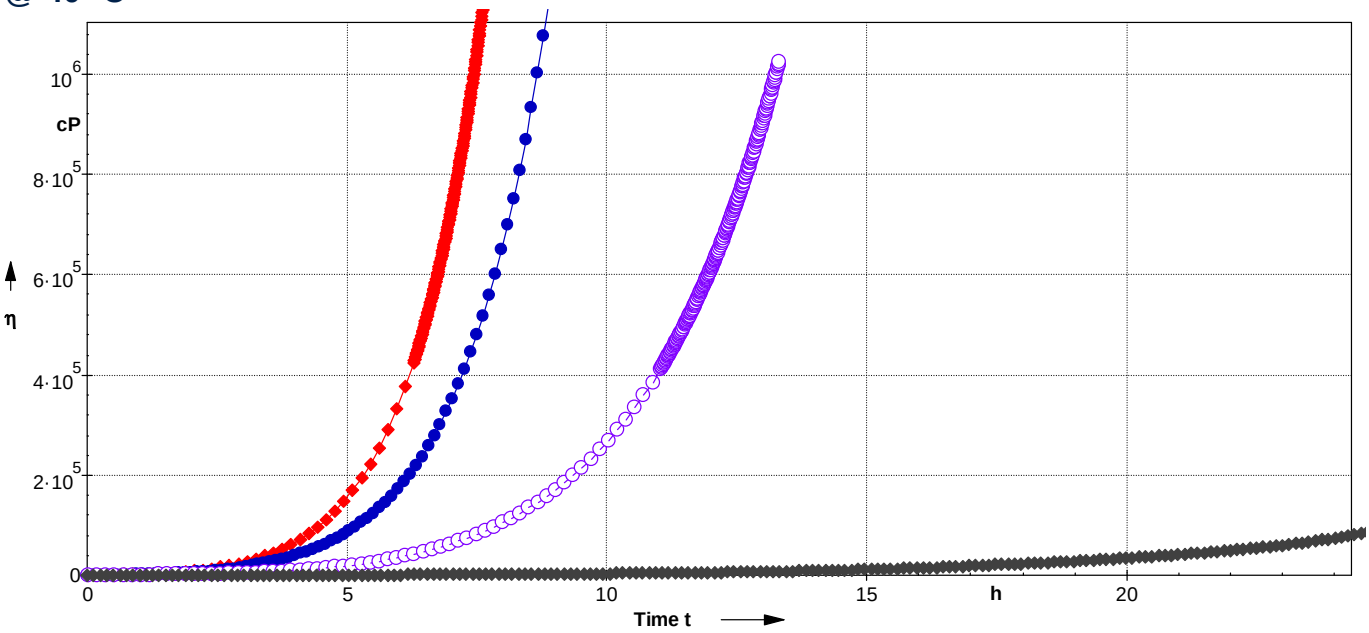
@ 30 °C



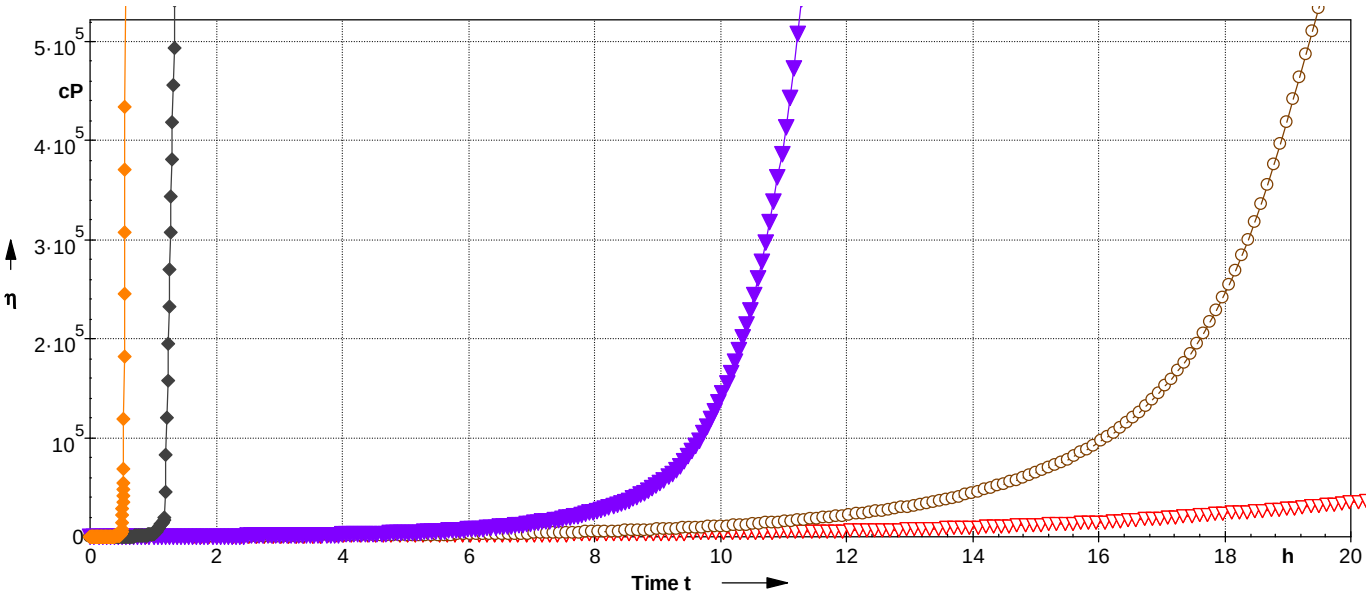
SR 8160 / SD 815 B2 @ 30 °C **SR 8160 / SD 815 B4 @ 30 °C**

SR 8160 / SD 815 B3 @ 30 °C

@ 40 °C



SR 8160 / SD 815 B7 @ 40 to 120 °C



Mechanical properties of pure resin

Cure Schedule		SR 8160 / SD 815 B2	SR 8160 / SD 815 B3	SR 8160 / SD 815 B4	SR 8160 / SD 815 B7
		24 hrs 25 °C + 12 hrs 60 °C	24 hrs 25 °C + 12 hrs 60 °C	24 hrs 25 °C + 12 hrs 60 °C	2 hrs 40 °C + 24 h 60 °C
Tensile					
Modulus of elasticity	N/mm^2	150	180	380	/
Maximum resistance	N/mm^2	10	14	14	/
Resistance at break	N/mm^2	-	-	14	/
Elongation at max. resistance	%	> 130	> 130	> 90	>90
Dureté Shore A		98	95	95	58
Glass transition / DSC					
Tg onset	°C	33	33	37	7

Tests carried out on samples of pure cast resin, without prior degassing, between steel plates.
Measures undertaken according to the following norms:

Tension :	*Iso 527 - 2*
Flexion :	*Iso 178*
Charpy impact strength:	*NF T 51-035*
Shear Strenght	*ASTM D 732 - 93*
Compresive	*ISO 604*
Water absorption:	*Internal. Polymerisation 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 -25 °C to 100 °C under nitrogen gaz Tg1 or Onset : 1st point at 20 °C/mn Tg1 maximum or Onset : second passage*
Glass transition DTMA:	*ISO 11357-1 - TG onset G' Temperature ramp 0 °C to 180 °C @ 2°C/min ASTM D4065 - TG 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 10s^{-1}*
Density:	*NF EN ISO 2811-1*	*Pyknometer*
Gel time :	*Cross G' G'' / rheometer CP50 - Shear rate 10 s^{-1}*	
GreenCarbon content:	*ASTM D6866 or XP CEN/TS 16640 Avril 2014*	

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