SR 8450 / SD 7120

Ultra slow Epoxy System for large syntactic foam castings

Characteristics :

Clear Epoxy System with no solvent.
Use for large castings with glass microspheres like Glasscell / Fillite / Phenolic
Low reactivity can be accelerated with SA 300 or higher room temperature.
Hardening at room temperature, post-curing from 30 to 80 °C
Low toxicity and smell, no CMR components.
High impact resistance and thermal chocks resistance.

Epoxy Resin SR 8450

Aspect		Liquide
Color		White translucent
Viscosity (mPa.s ± 20 %)	@ 15 °C	7 200
	@ 20 °C	3 500
	@ 25 °C	1 900
	@ 30 °C	1 000
	@ 40 °C	410
Density	@ 20 °C	1,14 ± 0.01
Storage stability		24 months Cristalisation possible with particluar conditions

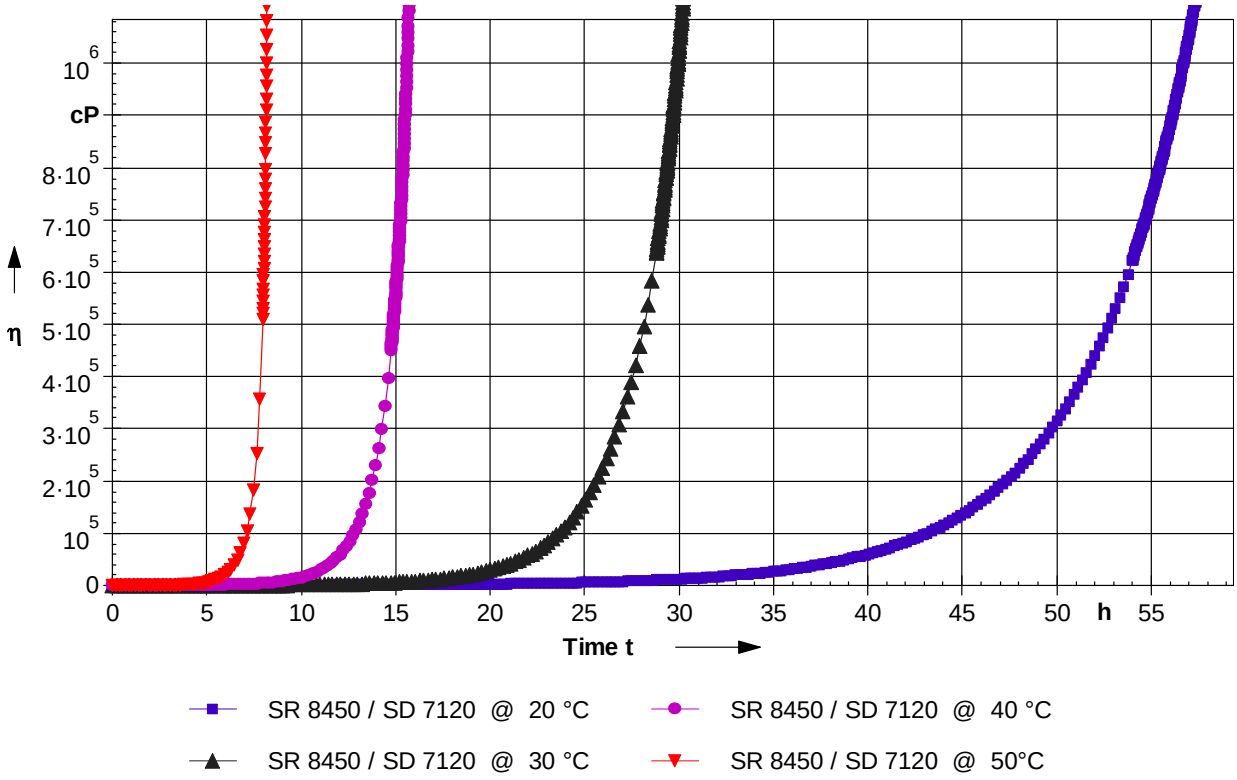
Hardener SD 7120

Aspect / color		Liquid Transparent to light yellow
Reactivity		Ultra slow
Viscosity (mPa.s + 20 %)	@15 °C	35
	@ 20 °C	28
	@ 25 °C	22
	@ 30 °C	18
	@ 40 °C	12
Density	@ 20 °C	0,97 ± 0.01
Storage stability		24 months

Mix SR 8450 / SD 7120

Mixing ratio per weight	**100 / 60**
Mixing ratio per volume	**100 / 70**
Color	Clear, light yellow
Viscosity (mPa.s)	
@ 20°C	420
@ 30°C	170
@ 40°C	80
@ 50°C	50
Crosslinked density	1.153

Increase viscosity @ 30, 40 and 50 °C on 1 mm thickness

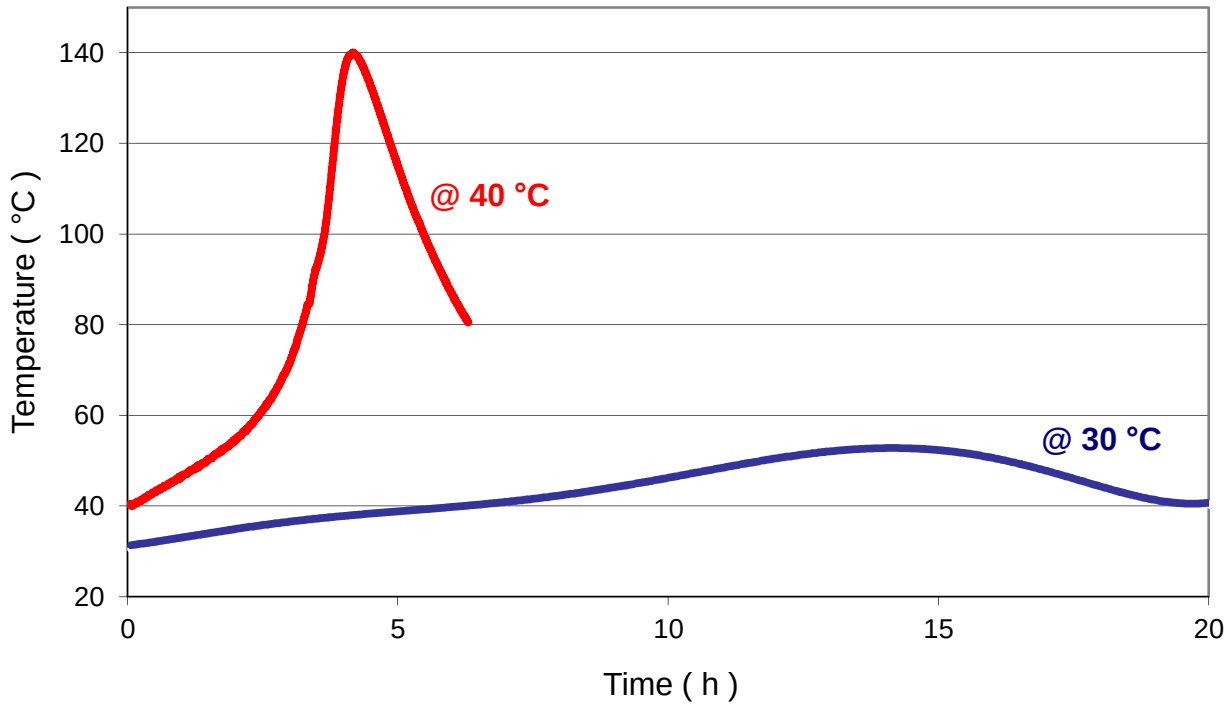


Post curing advice

Hardening at room temperature then:
24 h @ 40 °C or 16 h @ 60 °C or 8 h @ 80 °C

Mass reactivity – Exotherms on 1 kg mix:

	Exothermic pick Temperature (°C)	Time to reach the exothermic pick	Time to reach 50 °C
@ 40 °C @ 30 °C	140 54	4 h 07 13 h 50	1 h 30 12 h 00



Syntactic foam formulation example:

	Parts by weight	% weight
SR 8450	100	54.8
SD 1720	60	32.9
Silicell	1	0.55
Glasscell 10	21.5	11.8
Glasscell 25		

Parts by weight	% weight
100	50.8
60	30.5
1	0.5
36	18.2

Density	570 kg/m³
Compressive	
Compressive yield strength	17
Offset compressive yield	2.8

660 kg/m³
26
4.3

Mechanical properties on unfilled resin

Curing cycle		48 hrs 23 °C + 24 hrs 40 °C	48 hrs 23 °C + 16 hrs 60 °C	48 hrs 23 °C + 8 hrs 80 °C
Tension				
Modulus of elasticity	N/mm^2	2 310	1 610	2 550
Maximum resistance	N/mm^2	37	26	42
Resistance at break	N/mm^2	16	17	14
Elongation at max. load	%	2.9	3.1	2.9
Elongation at break	%	11.8	66	5.4
Flexion				
Modulus of elasticity	N/mm^2	350	1 850	1 410
Maximum resistance	N/mm^2	11	47	37
Elongation at max. load	%	4.5	3.9	4.2
Elongation at break	%	10.5	-	9.6
Compressive				
Compressive yield strength	N/mm^2		30	
Offset compressive yield	%		8.4	
Charpy impact strength				
Resilience	kJ/m^2	90	73	65
Glass transition		33	37	44
Tg 1 onset / tg onset maxi.				38

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 -5°C to 180°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 metod
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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