

SiPreg SR 121 / KTA 31x

Epoxy systems for "In House" Prepregging

Systems for in house prepregging.

Low viscosity systems suitable for manual or mechanical impregnation of fabrics, filaments, braids, stitched reinforcements.

Suitable for filament winding.

90 °C maximum working temperature

Post curing can be between 80 °C up to 150 °C

Two component systems without solvent, without reactive diluent, with no toxic nor CMR components

The 2 components are stable in storage for at least one year

Store the prepregged fabrics away from humidity

Epoxy Resin SR 121

Aspect		Liquid
Color		Clear to light yellow
Color Gardner		2 maximum
Viscosity (mPa.s)	@ 15 °C	24 500 ± 3 000
Rheometer	@ 20 °C	9 800 ± 1 000
CP 50 mm	@ 25 °C	4 500 ± 800
Shear gradient	@ 30 °C	2 300 ± 400
10 s ⁻¹	@ 40 °C	750 ± 200
Dry Extract		100 %
Density :	@ 20 °C	1.176 ± 0.05
Picnometer		
NF EN ISO 2811-1		
Refraction Index		1.5760
Storage Stability :		24 month, does not cristalize

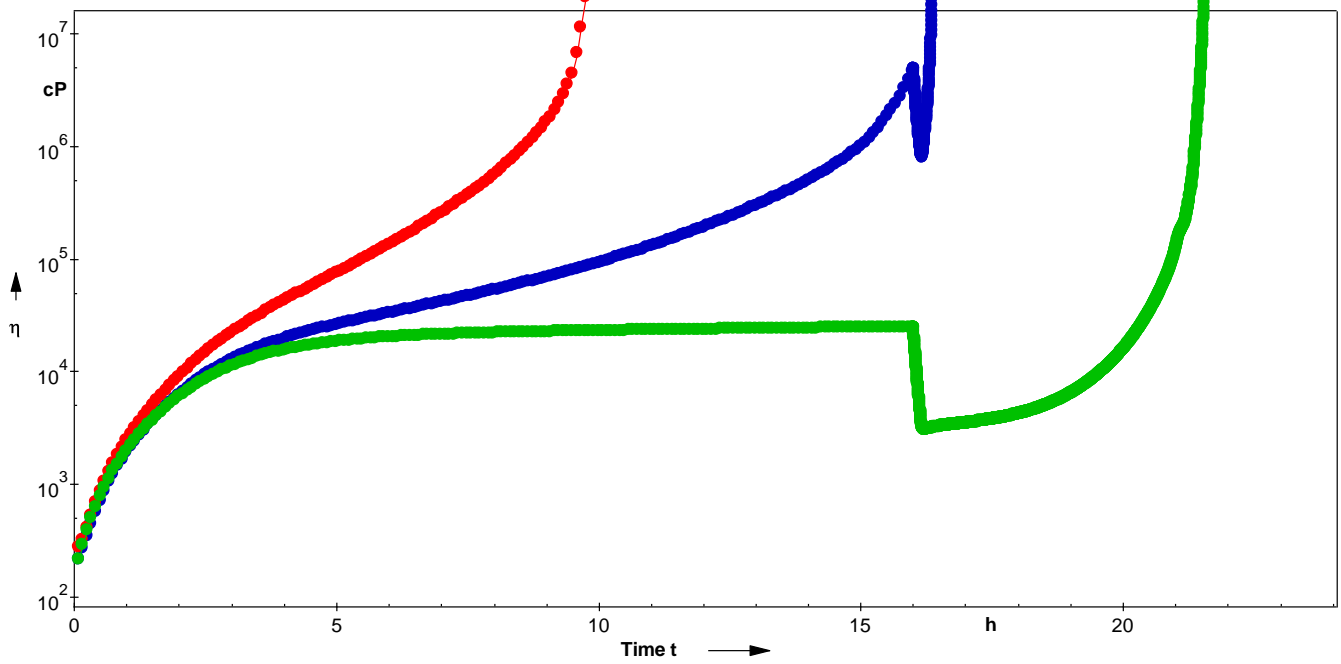
Hardeners KTA 31x

		KTA 317	KTA 315	KTA 313	KTA 311
Aspect / color:		Viscous liquid	Viscous liquid	Viscous liquid	Viscous liquid
Color		White	White	White	White
Reactivity		Very fast	Fast	Slow	Very slow
Dry extract		100 %			
Storage stability		Decants, thus mix before use Do not leave exposed to air, close container after use			
Viscosity (mPa.s)	@ 15 °C	16 000 ± 3 000	10 000 ± 2 000	11 000 ± 2 000	14 000 ± 3 000
Rheomèter	@ 20 °C	12 000 ± 2 000	6 500 ± 1 000	7 700 ± 1 500	9 000 ± 2 000
CP 50 mm	@ 25 °C	9 000 ± 1 500	4 800 ± 1 000	5 700 ± 1 000	6 800 ± 1 500
Shear gradient 10 s ⁻¹	@ 30 °C	7 500 ± 1 500	3 800 ± 800	4 500 ± 800	6 100 ± 1 000
	@ 40 °C	5 500 ± 1 000	2 800 ± 600	3100 ± 600	5 500 ± 1 000
Density	@ 20 °C	1.07	1.13	1.13	1.13
Picnometer					
NF EN ISO 2811-1					

Mix SR 121 / KTA 31x

	SR 121 / KTA 317	SR 121 / KTA 315	SR 121 / KTA 313	SR 121 / KTA 311
Mixing ratio by weight	100 / 21			
Mixing ratio by volume	100 / 23	100 / 22	100 / 22	100 / 22
Initial Viscosity (mPa.s)				
Rheometer @ 20 °C	5 600	6 600	7 000	5 700
PP 50 mm @ 30 °C	1 800	2 200	2 300	3 400
Shear gradient @ 40 °C 10 s ⁻¹	780	1 000	1 000	1 000
Minimum ageing required before process	24 hrs @ 23 °C	24 hrs @ 23 °C	24 hrs @ 23 °C	48 hrs @ 23 °C or 16 hrs 40 °C
Storage stability of the prepregged fabrics				
@ -18 °C	6 months	6 months	1 year	1 year
@ 20 °C	7	15	60 days	> 60 days
@ 40 °C	2	5	10 days	> 20 days
Flow	None	None	Yes	Important

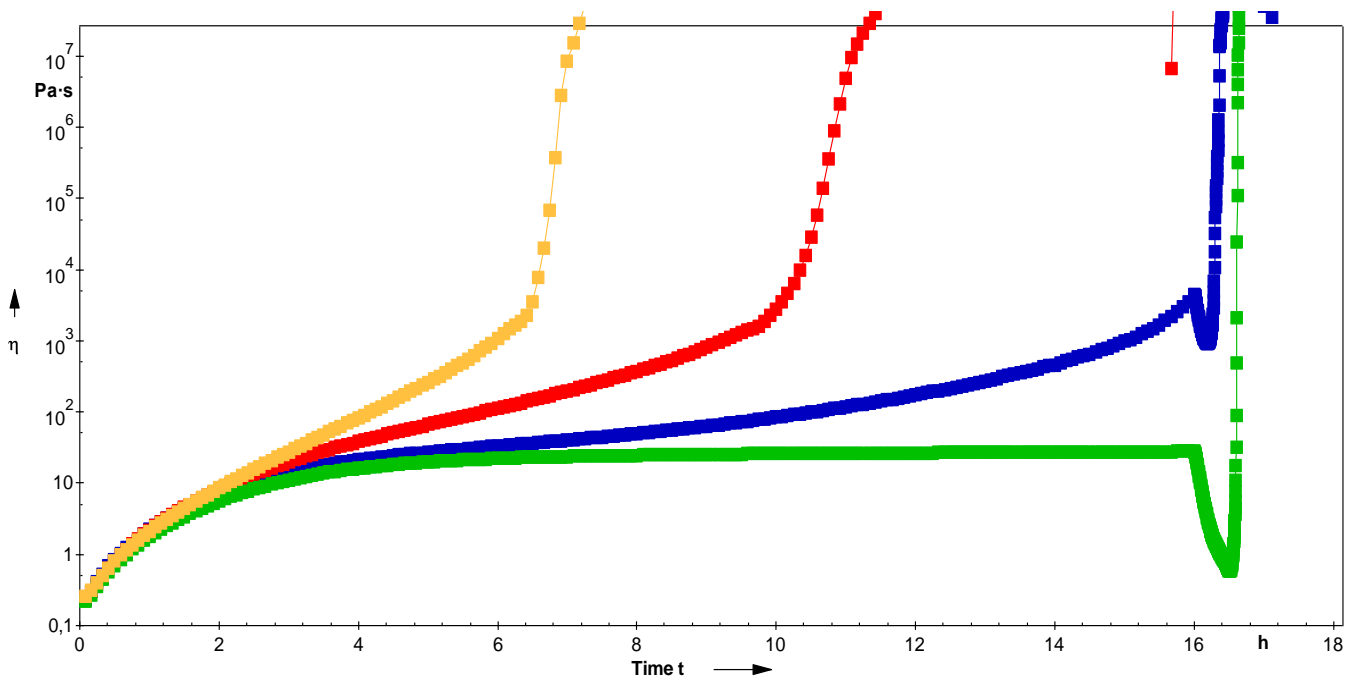
Viscosity evolution during 16 hours @ 60 °C, then cured @ 80°C



—●— SR 121 / KTA 313 —●— SR 121 / KTA 315 —●— SR 121 / KTA 311



Viscosity evolution during 16 hours @ 60 °C, then cured @ 120°C

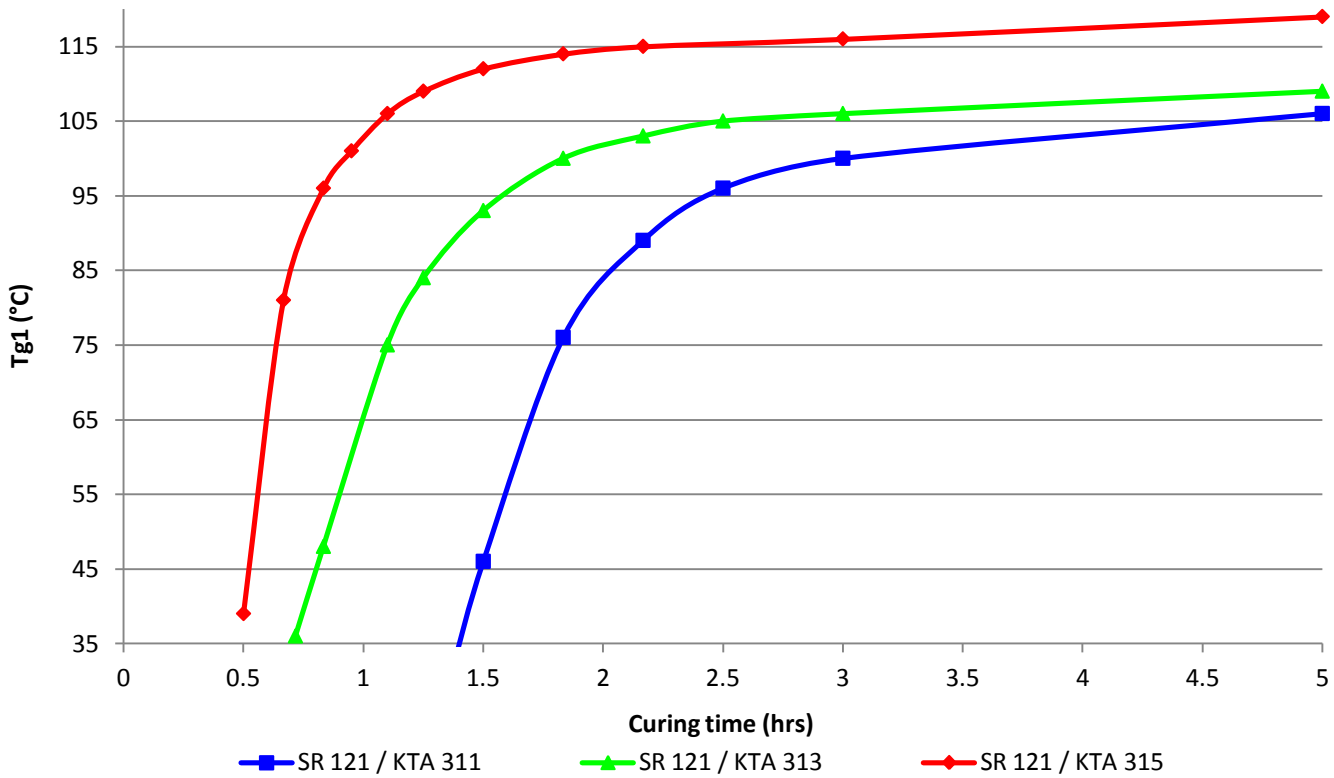


—■— SR 121 / KTA 313 —■— SR 121 / KTA 315 —■— SR 121 / KTA 311 —■— SR 121 / KTA 317

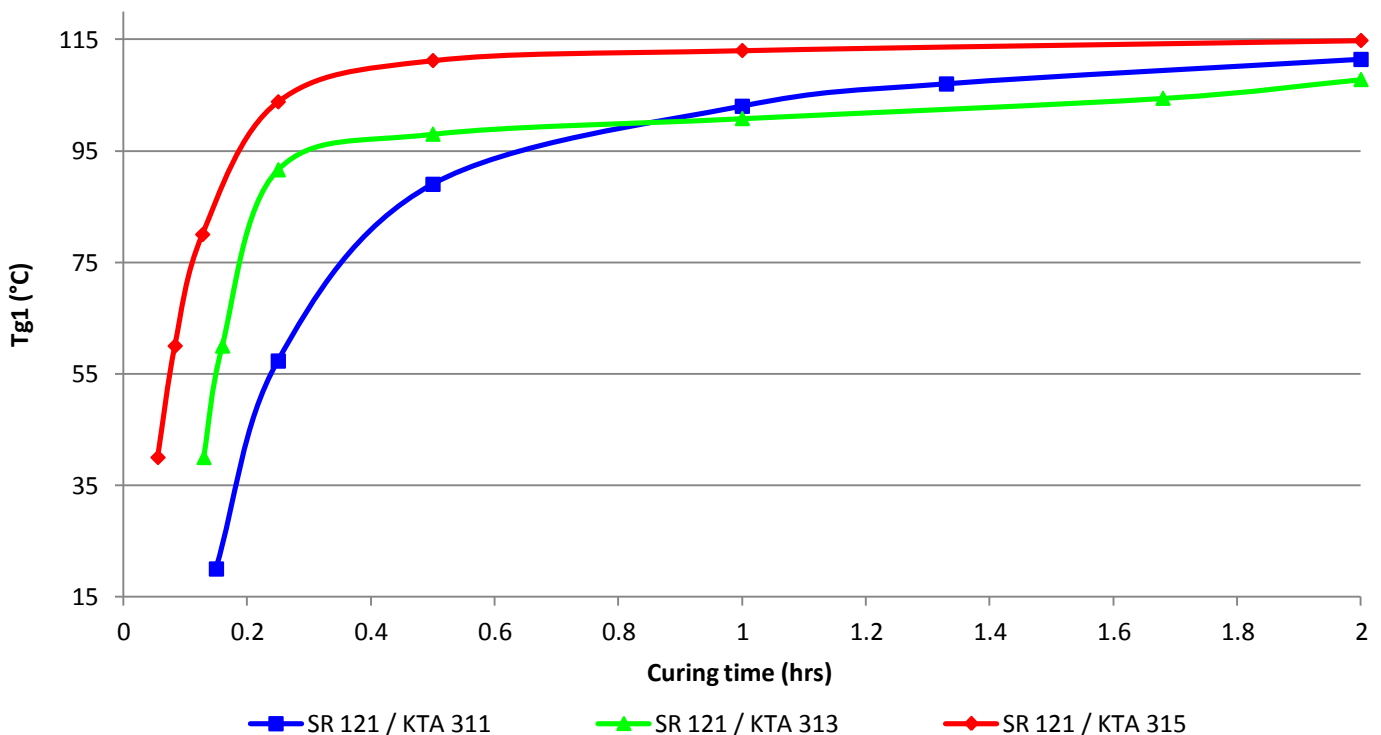


Kinetic : Evolution of Tg1 / onset @ 100 & 120 °C

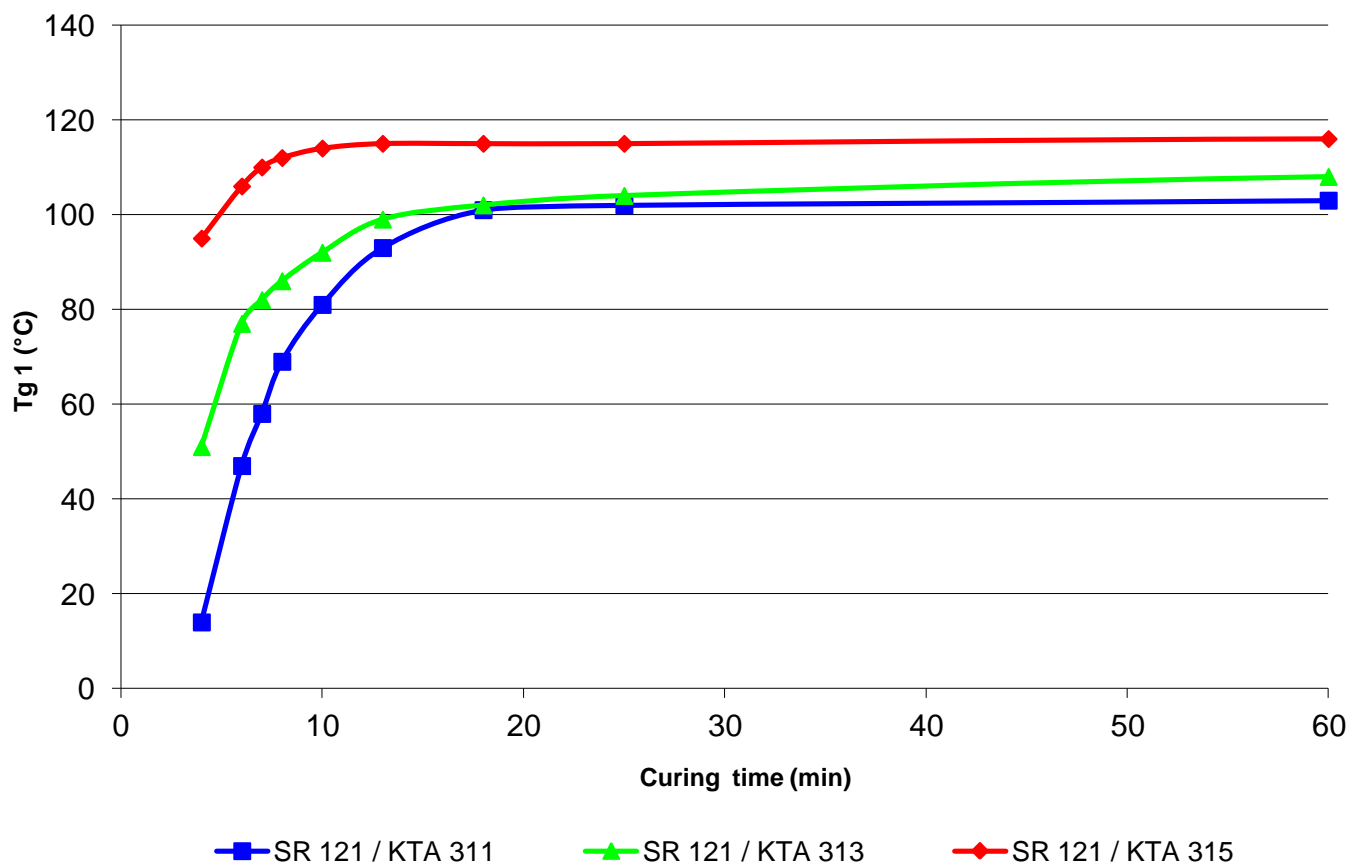
Kinetic @ 100 °C



Kinetic @ 120 °C



Kinetic @ 130 °C



Curing time

	SR 121 / KTA 311	SR 121 / KTA 313	SR 121 / KTA 315
@ 100 °C	5 h	3 h 30 min	2 h
@ 120 °C	2 h	1 h 30 min	1 h
@ 130 °C	1 h	40 min	30 min

Mechanical properties of pure epoxy (non reinforced):

		SR 121 / KTA 315	SR 121 / KTA 313	SR 121 / KTA 311
Curing cycle		12h à 30°C + 4h à 60°C + 2h à 120°C	12h à 30°C + 4h à 60°C + 2h à 120°C	12h à 30°C + 4h à 60°C + 2h à 120°C
Traction				
Modulus	N/mm ²	3300	3700	3600
Maximum Resistance	N/mm ²	75	65	80
Breaking Strength	N/mm ²	72	65	80
Elongation at maximum load	%	3,5	2	2,8
Elongation at break	%	3,5	2	2,8
Flexion				
Modulus	N/mm ²	3300	3700	3500
Maximum Resistance	N/mm ²	129	152	153
Elongation at maximum load	%	5	5,8	5,9
Elongation at break	%	5,2	6,5	7,1
Choc Charpy				
Résilience	kJ/m ²	14	14	17
Transition vitreuse				
Tg1 / onset	°C	116	104	107
Tg1 max	°C	116	112	113

Essais réalisés sur des éprouvettes de résine pure coulée, sans dégazage préalable, entre des plaques en acier.

Mesures effectuées suivant les normes :

Traction : NF T51-034

Flexion : NF T51-001

Compression: NF T 51-101

Choc Charpy: NF T51-501

Transition vitreuse: ISO 11357-2 : 1999 -5°C/180°C sous azote

Tg1 ou Onset : 1^{er} point à 20 °C/mn

Tg1 maximum ou Onset : deuxième passage