SiPreg SR 8500 / KTA 31x

Epoxy systems for ''In House'' Prepregging

Systems for in house prepregging.
Low viscosity systems suitable for manual or mecanical 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 8500

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

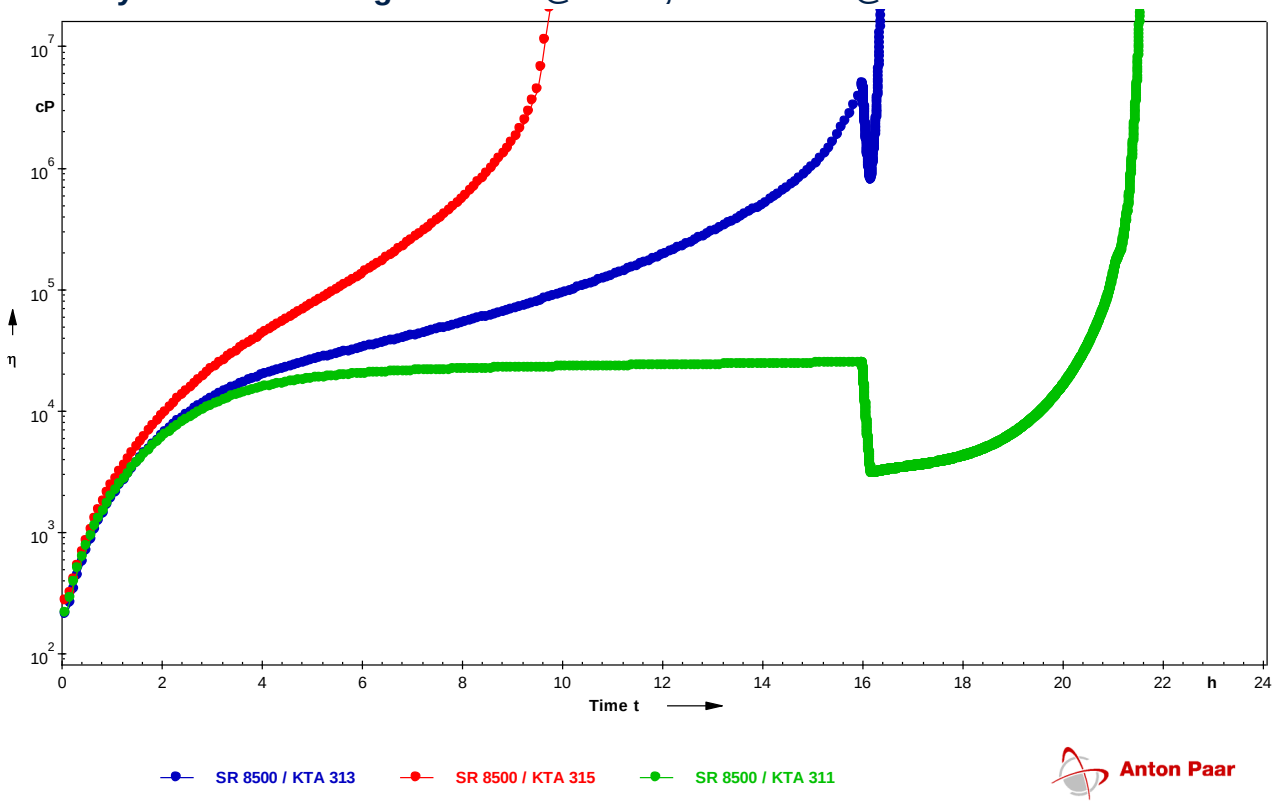
Hardeners KTA 31x

		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) Rheomèter CP 50 mm Shear gradient 10 s^{-1}	@ 15 °C @ 20 °C @ 25 °C @ 30 °C @ 40 °C	16 000 ± 3 000 12 000 ± 2 000 9 000 ± 1 500 7 500 ± 1 500 5 500 ± 1 000	10 000 ± 2 000 6 500 ± 1 000 4 800 ± 1 000 3 800 ± 800 2 800 ± 600	11 000 ± 2 000 7 700 ± 1 500 5 700 ± 1 000 4 500 ± 800 3100 ± 600	14 000 ± 3 000 9 000 ± 2 000 6 800 ± 1 500 6 100 ± 1 000 5 500 ± 1 000
Density Picnometer NF EN ISO 2811-1	@ 20 °C	1.07	1.13	1.13	1.13

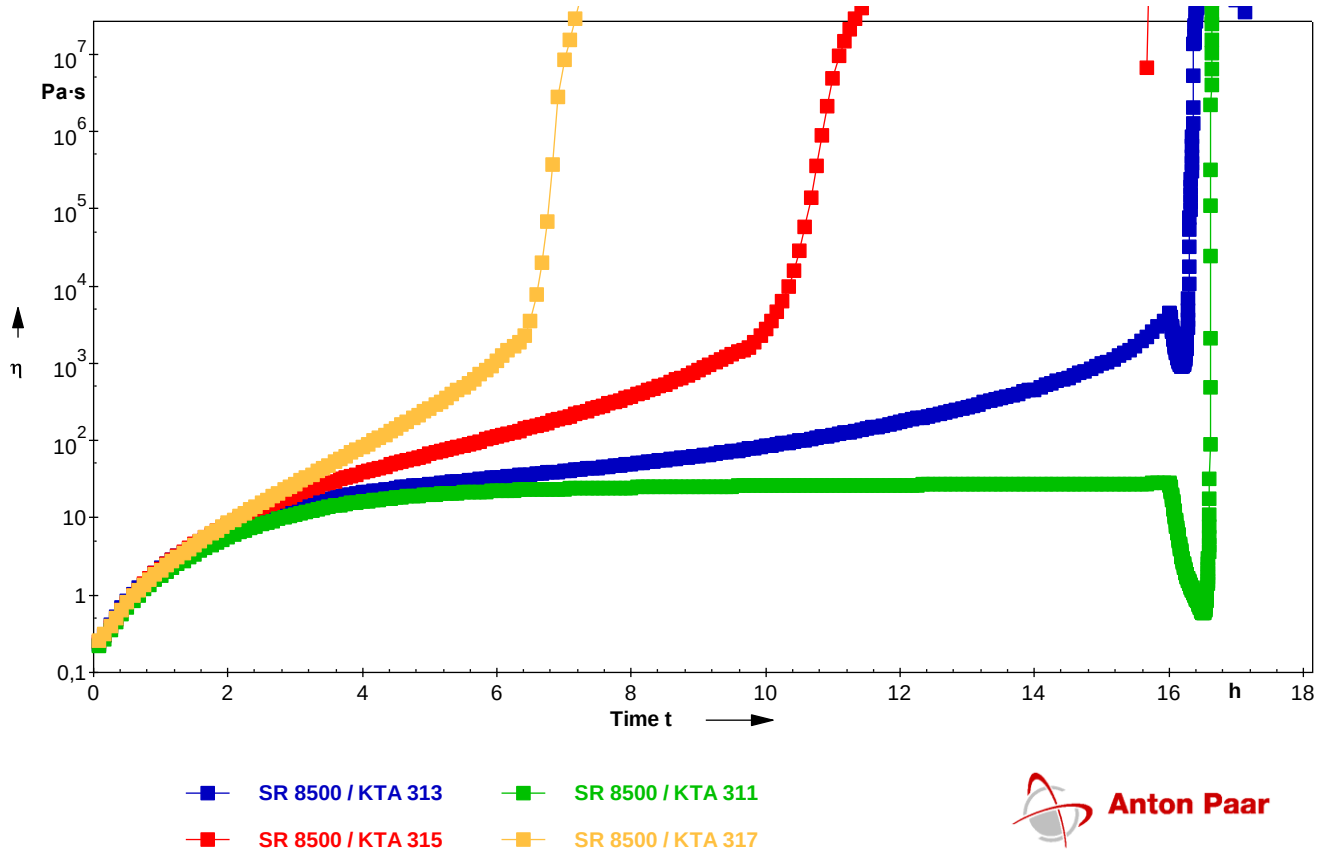
Mix SR 8500 / KTA 31x

	SR 8500 / KTA 317	SR 8500 / KTA 315	SR 8500 / KTA 313	SR 8500 / 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 PP 50 mm @ 30 °C Shear gradient @ 40 °C 10 s^{-1}	5 600 1 800 780	6 600 2 200 1 000	7 000 2 300 1 000	5 700 3 400 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 @ 20°C @ 40 °C	 6 months 7 2	 6 months 15 5	 1 year 60 days 10 days	 1 year > 60 days > 20 days
Flow	None	None	Yes	Important

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

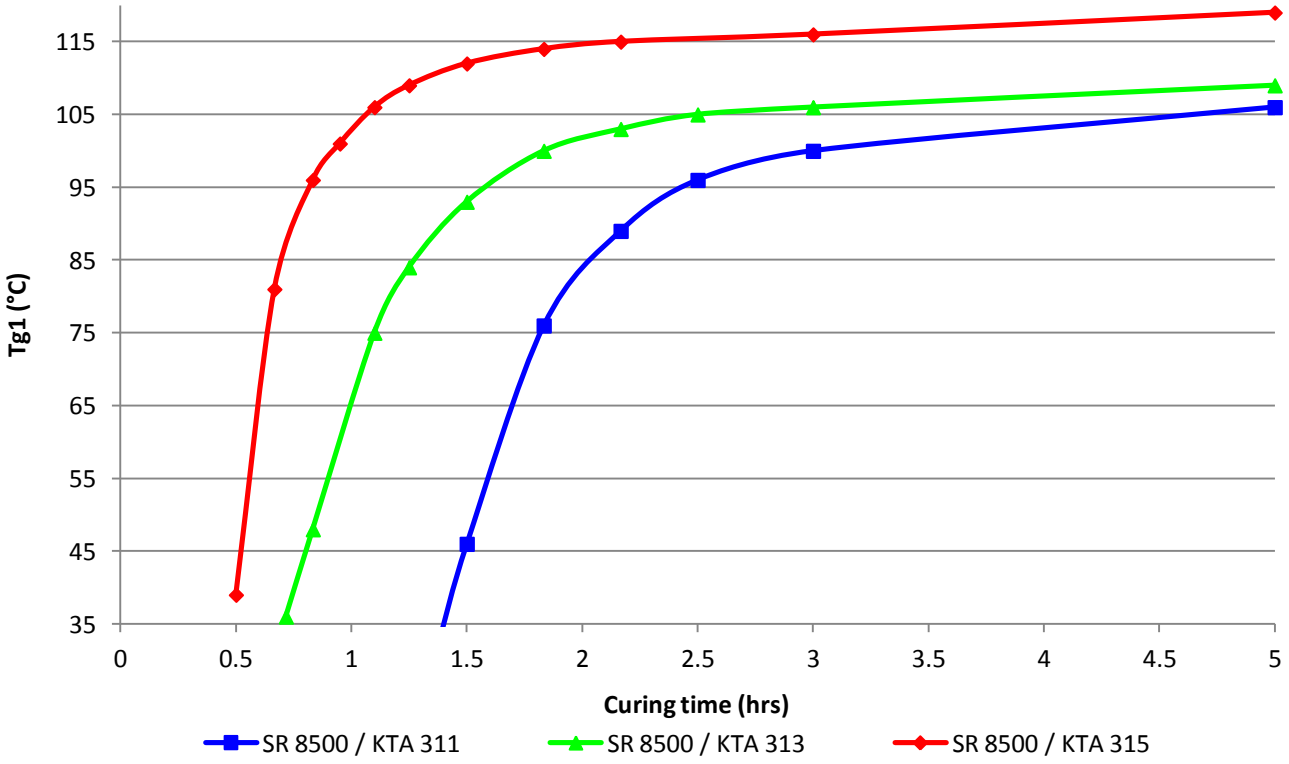


Viscosity evolution during 16 hours @ 60 °C, then cured @ 120°C

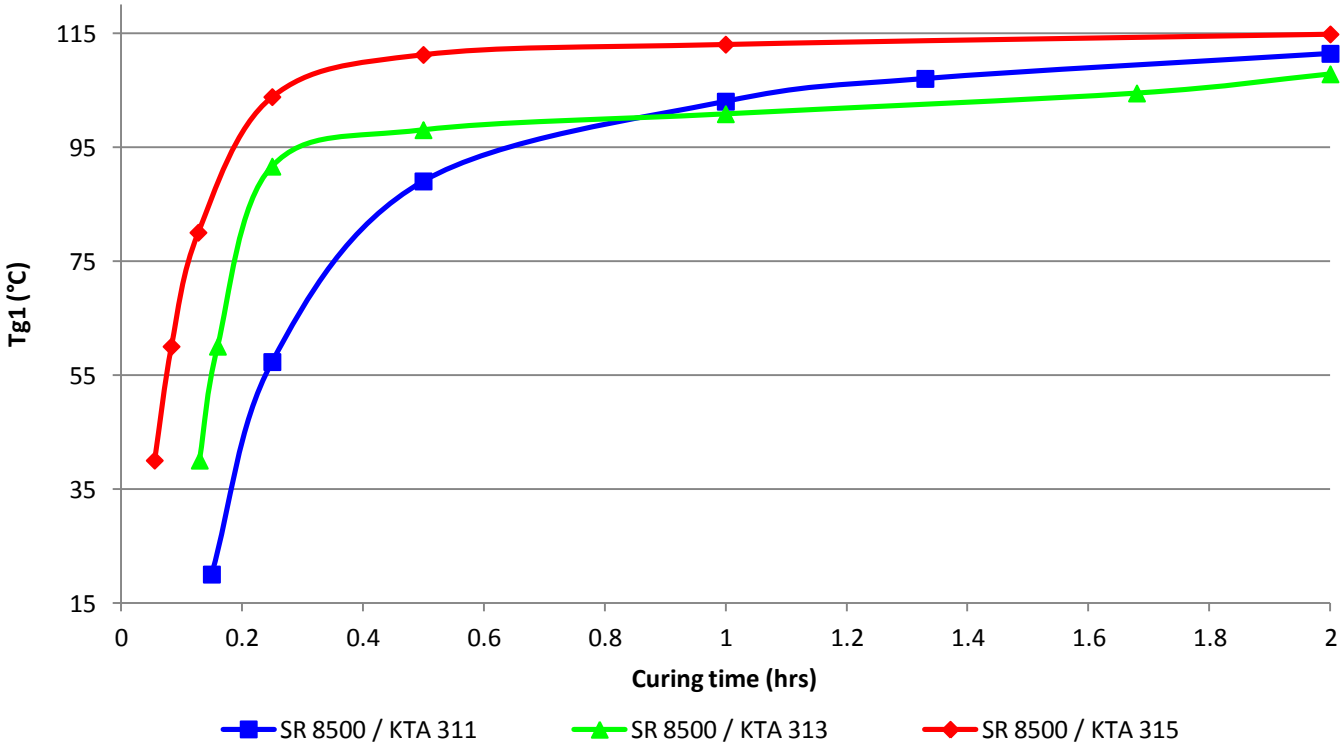


Kinetic : Evolution of Tg1 / onset @ 100 & 120 °C

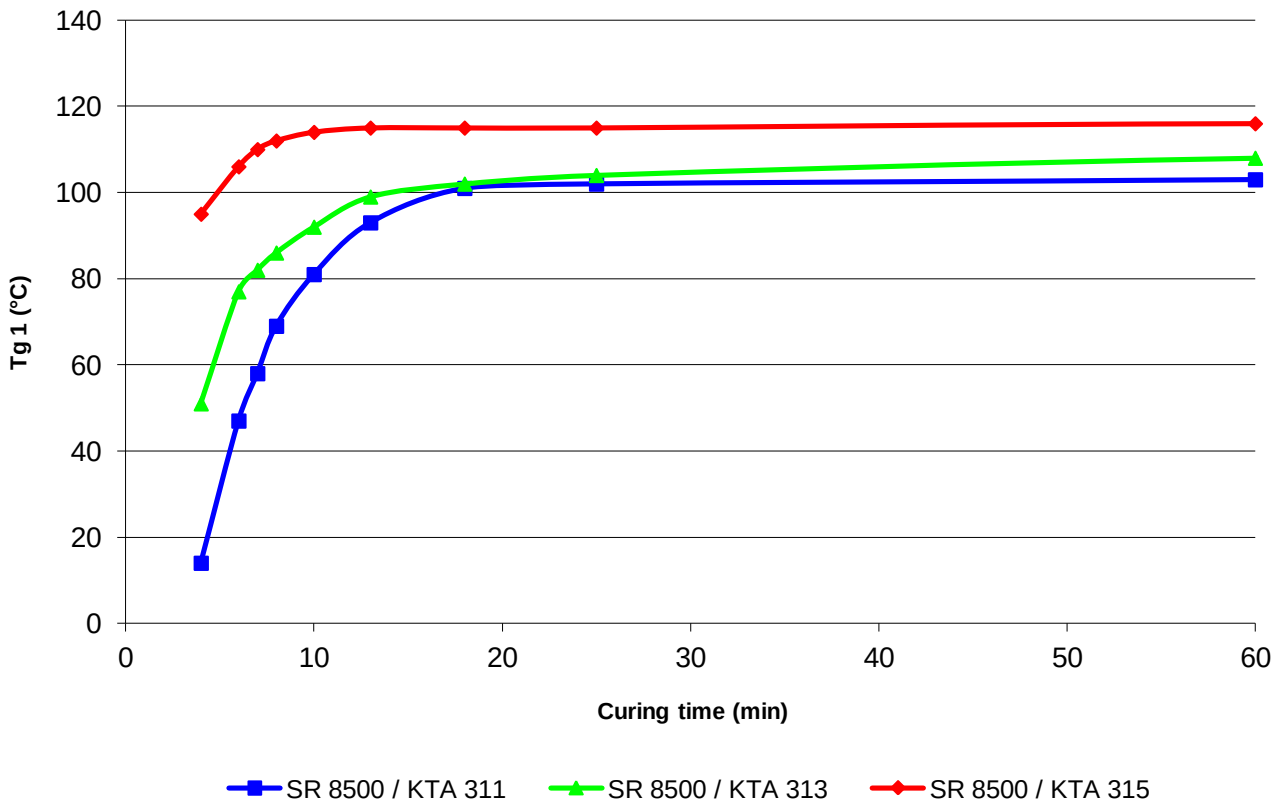
Kinetic @ 100 °C



Kinetic @ 120 °C



Kinetic @ 130 °C



Curing time

	SR 8500 / KTA 311	SR 8500 / KTA 313	SR 8500 / 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 8500 / KTA 315	SR 8500 / KTA 313	SR 8500 / 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 : 1er point à 20 °C/mn
Tg1 maximum ou Onset : deuxième passage