

## SR 632 / SD 8454

### Epoxy system for wet substrates and under water repair

SR 632 / SD 8454 system hardens on wet substrates or under water from 10 °C minimum. The use of the accelerator SA 300 allows a hardening from 5 °C or a faster cure. This epoxy system has been formulated for emergency repairs under difficult conditions (high level of humidity, low temperature...). SR 632 / SD 8454 can be used with glass, carbon and aramid reinforcements.

		<b>SD8454</b>
Reactivity level		
Initial viscosity (mPa.s)	@ 20 °C	2 200
	@ 30 °C	800
Pot Life	@ 20 °C	-
	@ 30 °C	-
Mixing ratio	By weight	100 / 47
	By volume	100 / 50
Maximum strength	N/mm <sup>2</sup>	71
% Elongation at max strength	%	4,8
TG1 max onset	°C	73
Gel Time (1 mm)	@ 20 °C	05 h 40
	@ 30 °C	03 h 15
Time to reach 400 mPa.s	@ 20 °C	-
	@ 30 °C	-
Demold time	@ 20 °C	17 h 00
	@ 30 °C	09 h 45

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## Epoxy resin SR 632

Appearance		liquid
Color		yellow
Gardner color		≤ 2
Viscosity (mPa.s)	@ 15 °C	8180 ± 1640
	@ 20 °C	3760 ± 750
	@ 25 °C	2000 ± 400
	@ 30 °C	1100 ± 220
	@ 40 °C	NC ± NC
Density	@ 20 °C	1,1600
Refractive index	@ 25 °C	1,567 ± ,002
Storage (months)	@ Ta	24

## Hardener(s)

		SD8454
Appearance		liquid
Color		yellow-orange
Gardner color		≤ 6
Reactivity level		
Viscosity (mPa.s)	@ 15 °C	1150 ± 230
	@ 20 °C	715 ± 145
	@ 25 °C	620 ± 250
	@ 30 °C	315 ± 65
Density	@ 20 °C	1,0196
Refractive index	@ 25 °C	1,5269 ± ,002
Storage (months)	@ Ta	24

### Mixe(s) SR 632 / SD 8454

		SD8454
Appearance		liquid
Color		yellow
Mixing ratio		
	By weight	100 / 47
	By volume	100 / 50
Density	@ 20 °C	
Initial viscosity (mPa.s)	@ 20 °C	2 200
PP 50 mm / 10 s <sup>-1</sup>	@ 30 °C	800

### Mechanical properties on cast resin :

		SR 632 / SD8454		
Curing cycles	—————→	24 h @ T ° C 6 h @ 60 ° C		
<b>Tensile</b>				
Modulus	N/mm <sup>2</sup>	2 800		
Maximum strength	N/mm <sup>2</sup>	71		
Breaking Strength	N/mm <sup>2</sup>	76		
Elongation at max strength	%	4,8		
Elongation at break	%	6,2		
<b>Flexion</b>				
Modulus	N/mm <sup>2</sup>	3 000		
Maximum strength	N/mm <sup>2</sup>	120		
Breaking Strength	N/mm <sup>2</sup>			
Elongation at max strength	%	6		
Elongation at break	%	10		
<b>Shear</b>				
Breaking Strength	N/mm <sup>2</sup>			
<b>Compression</b>				
Modulus	N/mm <sup>2</sup>			
Yield strength	N/mm <sup>2</sup>			
Offset compression yield	%			
<b>Charpy impact strength</b>				
Resilience	kJ/m <sup>2</sup>			
<b>DSC glass transition</b>				
TG1 onset	°C	81		
TG1 max onset	°C	73		
<b>DTMA glass transition</b>				
TG tan delta	°C			
TeiG onset G'	°C			
TmG midpoint G'	°C			
TefG endpoint	°C			
TG peak G''	°C			

**Tests carried out on samples of pure cast resin, without prior degassing, between steel plates.**

**Measures undertaken according to the following norms:**

**Mechanical tests:**

Tension:	NF EN ISO 527-2:2012
Flexion:	NF EN ISO 178:2011
Compression:	NF EN ISO 604:2004 or NF EN ISO 844:2014 (foam product)
Charpy impact strength:	NF EN ISO 179-1:2010
Shear Strength:	ASTM D732-17 (Punch Tool)
Interlaminar shrinkage strength:	ASTM D5528-13
Toughness (GIC et KIC) :	ISO 13586:2000

Water absorption: Internal. Polymerization according to cycle, machining, weighing, time spent in distilled water at 70 °C / 48 hours, weighing 1 hour after emerging,

Bonding Strength Double lap shear:	ASTM D3528-96
	ADH = adhesive failure
	COH = cohesive failure
	TLC = thin-layer cohesive failure
	FT = fiber-tear failure.
	LFT = light-fiber-tear failure

**Thermal tests:**

Glass transition DSC:	NF EN ISO 11357-2:2014 -5°C to 180 °C under nitrogen gas
	$T_{G1}$ or Onset: 1 <sup>st</sup> scan at 20 °C/min
	$T_{G1}$ maximum or Onset: 2 <sup>nd</sup> scan at 20 °C/min

Glass transition DTMA:	Temperature ramp 0 °C to 180 °C @ 2°C/min under normal atmosphere
	NF EN ISO 11357-1:2016 $T_g$ onset G'
	ASTM D4065-12 $T_g$ peak G''

**Physical tests:**

Gardner color:	NF EN ISO 4630:2016	Visual method
Refractive index:	NF ISO 280:1999	
Viscosity:	NF EN ISO 3219:1994	Rheometer 50 mm, shear 10 s <sup>-1</sup>
Density on liquids:	ISO 2811-1:2016	Pycnometer
Density on solid:	NF EN ISO 1183-3:1999	Helium Pycnometer
Density on foam:	NF EN ISO 845:2009	
Gel time:	Cross G' G''	Rheometer CP50 - Shear rate 10 s <sup>-1</sup>
Green Carbone content:	ASTM D6866-16 or XP CEN/TS 16640 Avril 2014	

<b>TA:</b>	Ambient temperature (20 to 25 °C)
<b>NC:</b>	No information Communicated
<b>NB:</b>	No Breaking (maximum flexion deformation : 15 %)

Table 1st page:

Pot Life:	Time to reach 50 °C or time limit for use
Gel time:	Intersection of tangents on the viscosity curve of 1 mm thick layer
Release time:	Time required to obtain sufficient mechanical strength to release
Minimum Vacuum Time:	Time in which vacuum can be applied (25000 mPa.s)
Maximum Vacuum time:	Limit time below which a vacuum can be applied (G'G'' crossing)
Optimum Infusion time:	Time to reach 400 mPa.s
Max Infusion Time:	Time to reach 25000 mPa.s
Vacuum cut-off time:	Time to reach G'G'' crossover + 20%

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**Mix**

SR 632	Resin part + Hardener part (kg)	Resin part (kg)	Hardener part (kg)
SD8454			