

ISOBOND SR 7100 TH / SD 710X

Epoxy Structural adhesive for thin or thick bonding and lamination to recover prepreg

ISOBOND **SR 7100 TH - SD 710X** system was specially formulated for thick and thin bonding to resist high stress in fatigue (excellent against propagation of microcracks).

The application on non-porous surface materials is possible. The hand mixing of quantities higher than 200 or 300 grams can be complicated and induce significant risks of non-homogeneous mixtures in production. A dosing machine and mixing can then be considered, and even essential to avoid any deviation from quality in mixtures.

Epoxy resin ISOBOND SR 7100 TH

Appearance		gel
Color		blue
Viscosity (mPa.s)	@ 15 °C	83540 ± 16700
	@ 20 °C	55140 ± 11000
	@ 25 °C	38540 ± 7700
	@ 30 °C	28340 ± 5600
	@ 40 °C	18340 ± 3700
Density	@ 20 °C	1,1800
Refractive index	@ 25 °C	1,5387 ± ,002
Storage (months)	@ Ta	24

Hardener(s)

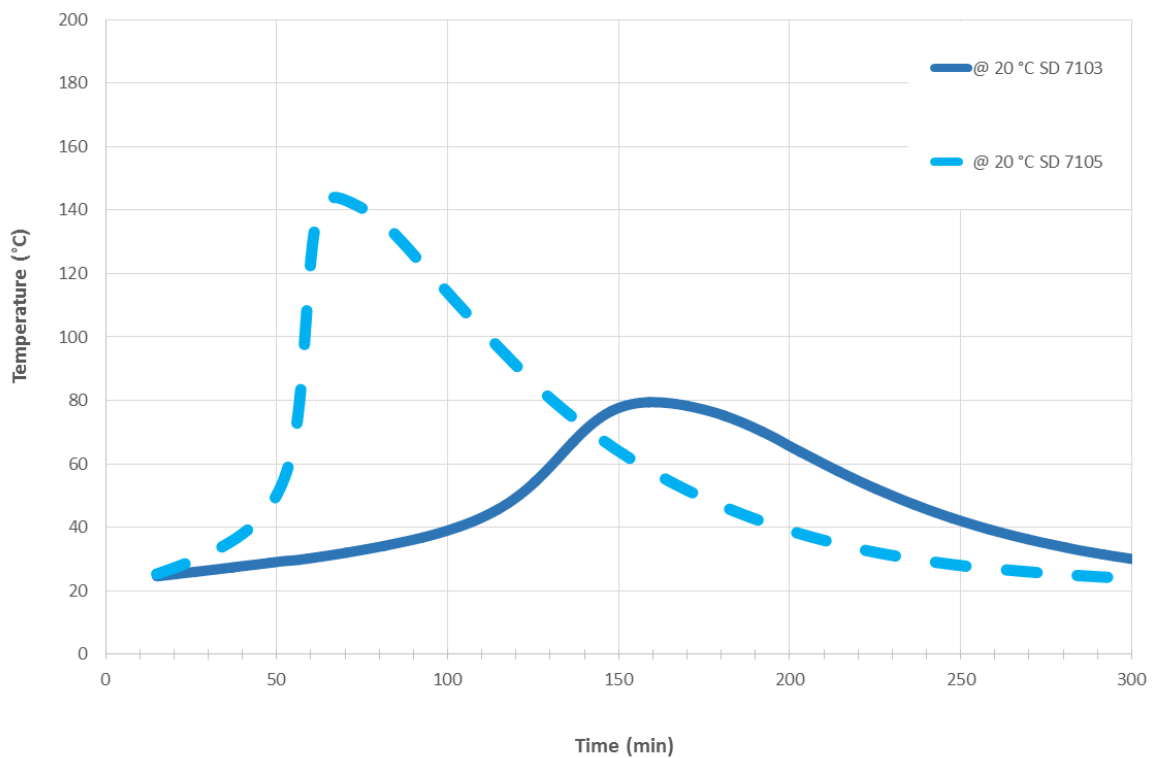
		SD 7105	SD 7103
Appearance		gel	gel
Color		yellow-orange	red
Reactivity level		Standard	Slow
Viscosity (mPa.s)	@ 15 °C	47010 ± 16710	30000 ± 6000
	@ 20 °C	36310 ± 13610	25000 ± 5000
	@ 25 °C	29470 ± 11570	20000 ± 4000
	@ 30 °C	22500 ± 7900	18000 ± 3600
	@ 40 °C	13600 ± 4750	
Density	@ 20 °C	1,0240	1,0205
Refractive index	@ 25 °C	1,537 ± ,002	1,5077 ± ,002
Storage (months)	@ Ta	18	18

Mixe(s)

	SD 7105	SD 7103
Appearance	gel	gel
Color	vert 1	purple
Mixing ratio		
By weight	100 / 45	100 / 45
By volume	100 / 50	100 / 50
Initial viscosity @ 20 °C	99700	73500
Density @ 20 °C	1,1076	1,1
PP 50 mm - 10 s-1 (mPa.s)@ 30 °C	82200	64300

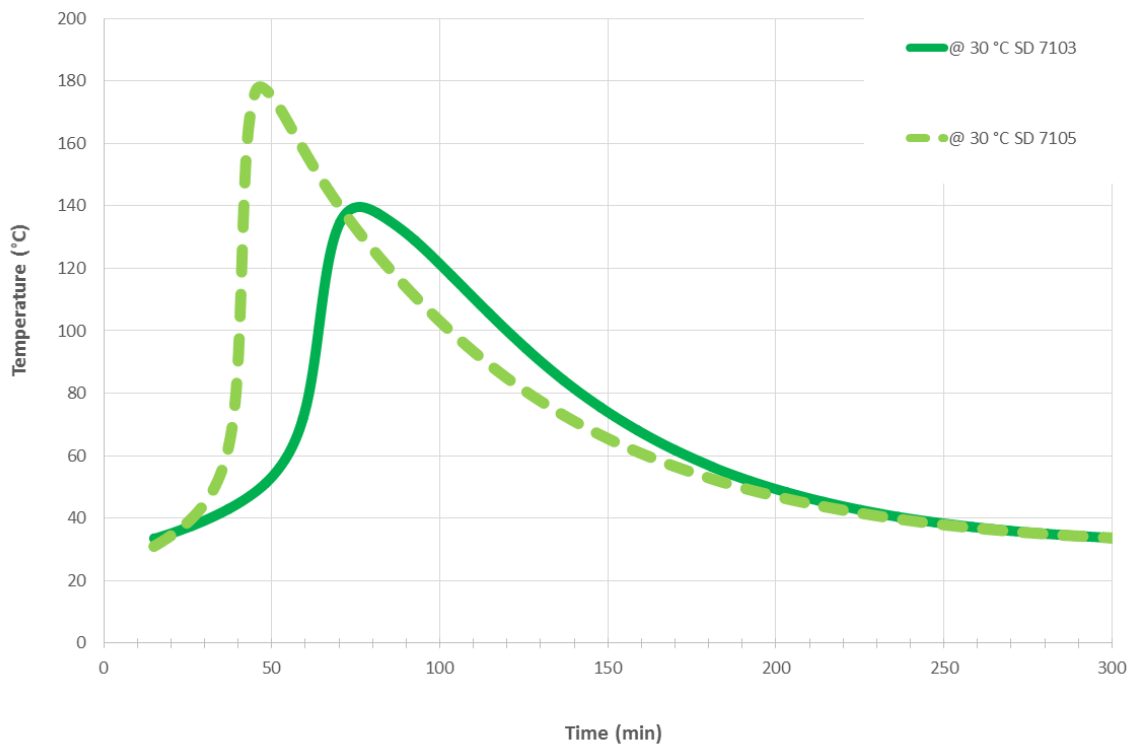
Reactivity @ 20 °C on 500 g

	SD 7105	SD 7103
Exothermic temperature (°C)	144	79
Time to reach exothermic peak (min)	65	153
Time to reach 50 °C (min)	50	120



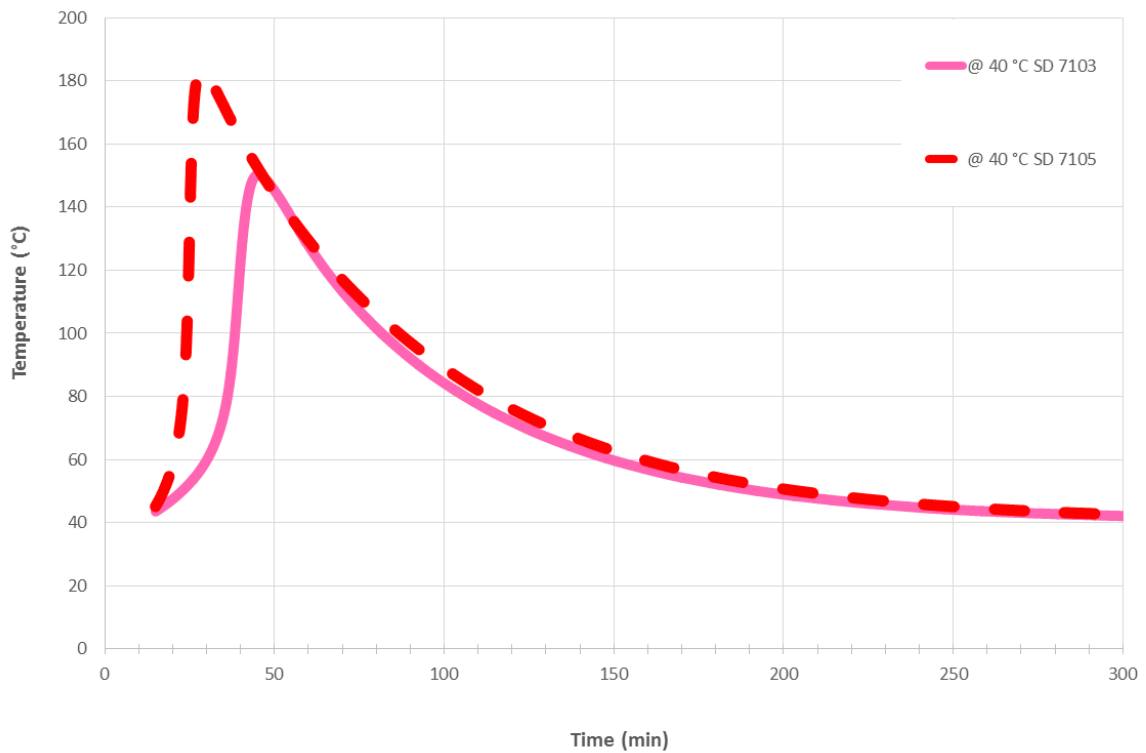
Reactivity @ 30 °C on 500 g

	SD 7105	SD 7103
Exothermic temperature (°C)	178	140
Time to reach exothermic peak (min)	46	75
Time to reach 50 °C (min)	33	46



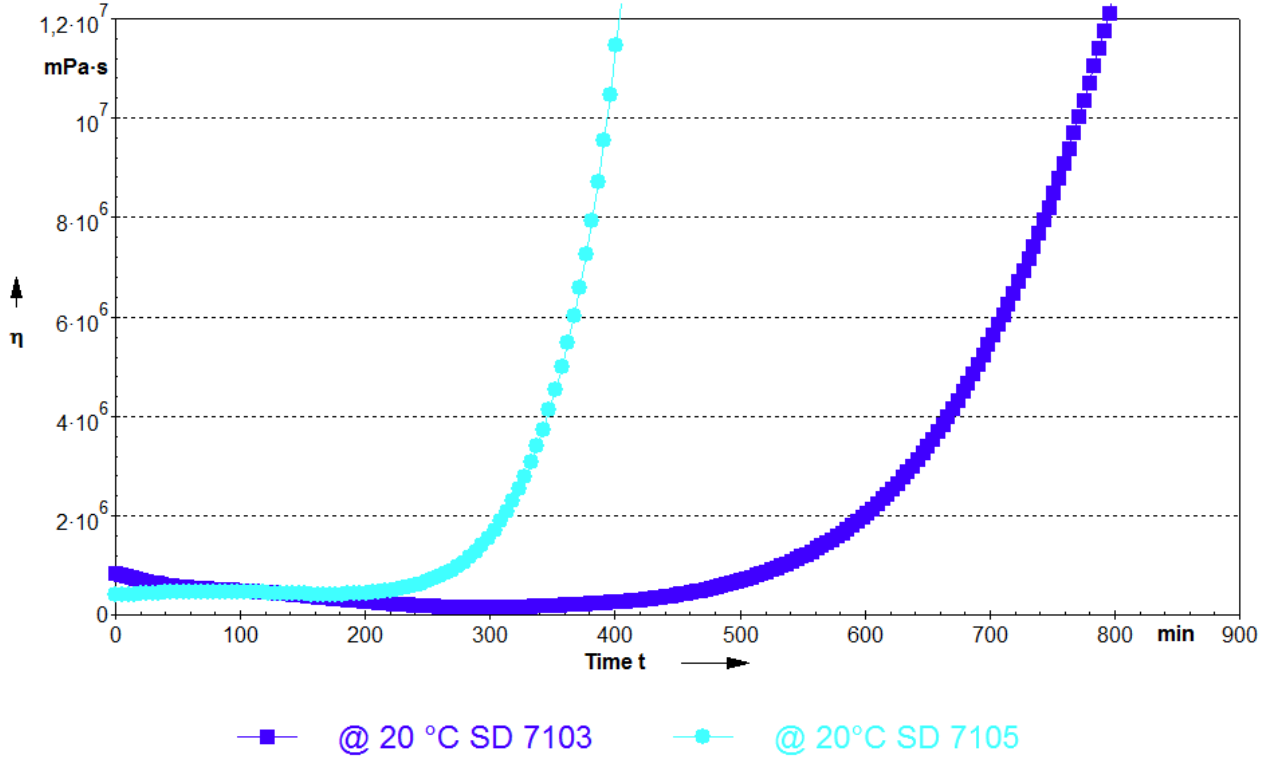
Reactivity @ 40 °C on 500 g

	SD 7105	SD 7103
Exothermic temperature (°C)	184	150
Time to reach exothermic peak (min)	28	44
Time to reach 50 °C (min)	17	22

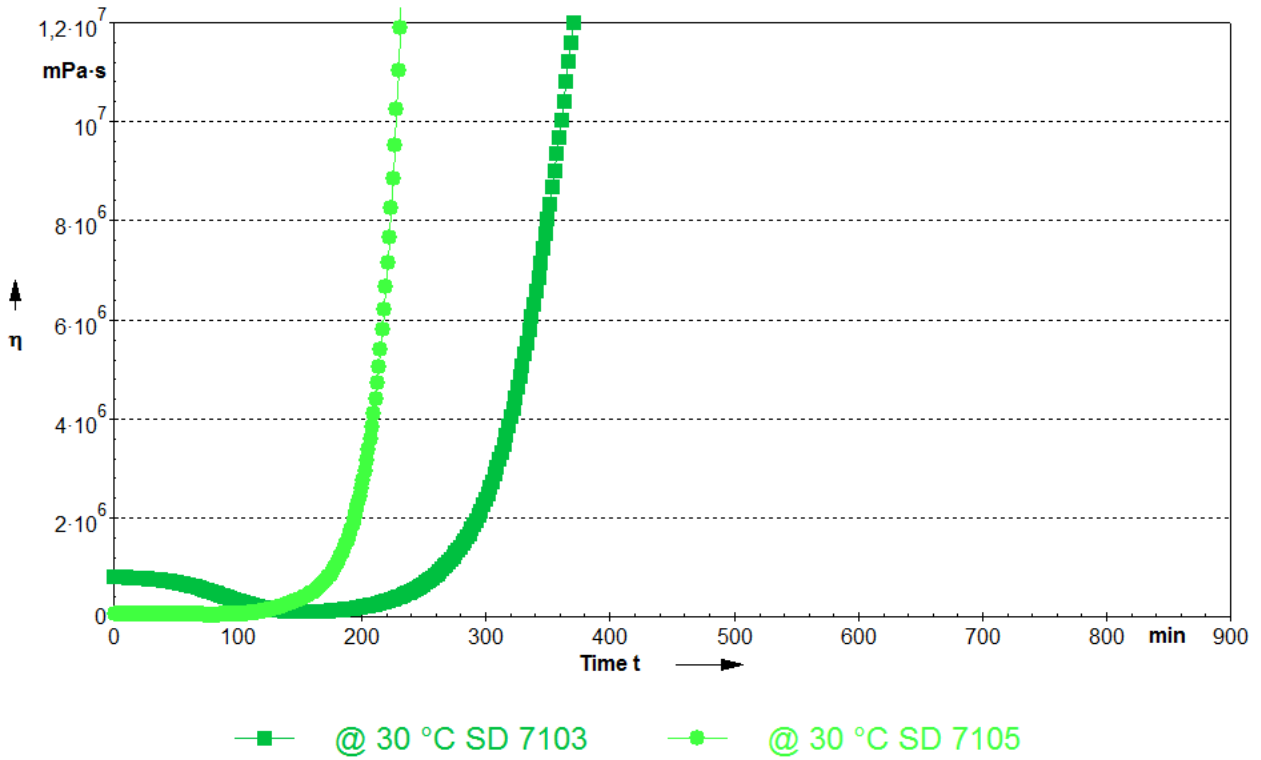


Reactivity on 1 mm thick layer

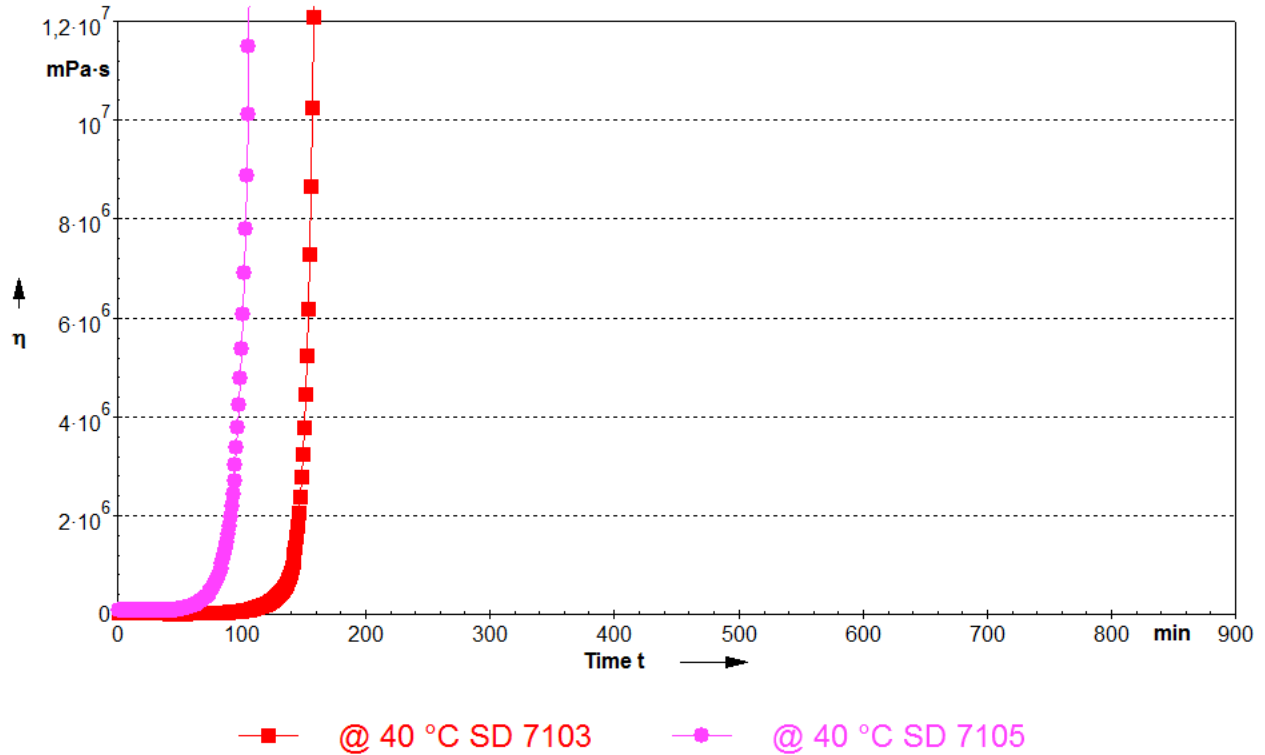
@ 20 °C



@ 30 °C



@ 40 °C



Mechanical properties on cast resin :

		ISOBOND SR 7100 TH / SD 7105			ISOBOND SR 7100 TH / SD 7103		
Curing cycles		7 j @ TA	24 h @ TA + 16 h @ 40°C	24 h @ TA + 8 h @ 60°C	7 j @ TA	24 h @ TA + 16 h @ 40°C	24 h @ TA + 8 h @ 60°C
Tensile							
Modulus	N/mm ²	2 400	2 400	2 300	1 800	2 000	2 260
Maximum strength	N/mm ²	38	39	39	28	32	35
Breaking Strength	N/mm ²	32	32	35	22	28	30
Elongation at max strength	%	3	3,2	3,3	3,5	3,5	3,5
Elongation at break	%	4,2	6,2	6,9	18,6	10,2	14,3
Flexion							
Modulus	N/mm ²	2 200	2 200	2 200	1 770	1 760	1 860
Maximum strength	N/mm ²	70	71	72	56	57	59
Breaking Strength	N/mm ²	39					35
Elongation at max strength	%	4,5	4,6	4,8	5	5,1	5
Elongation at break	%	13,4					14,5
Compression							
Yield strength	N/mm ²	65	64	65	52	52	54
Shear strength							
On pure resin	N/mm ²	29	29	30	28	28	29
Alu/Alu bonding	N/mm ²						
Steel /Steel bonding	N/mm ²						
Wood / Wood bonding	N/mm ²						
GRP/GRP bonding	N/mm ²		30	31			
Toughness							
G1c interlaminar (J/m ² -CBT)							
DSC glass transition							
TG1 onset	°C	57	58	53	54	54	60
TG1 max onset	°C			64			

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,

Thermal tests:

Glass transition DSC:	NF EN ISO 11357-2:2014 -5°C to 180 °C under nitrogen gas
T_{G1} or Onset:	1 st scan at 20 °C/min
T_{G1} maximum or Onset:	2nd 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 ⁻¹
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 ⁻¹
Green Carbone content:	ASTM D6866-16 or XP CEN/TS 16640 Avril 2014	

TA: Ambient temperature (20 to 25 °C)

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