

ISOBOND SR 740 / SD 74x

High thickness structural epoxy adhesive

ISOBOND SR 740 - SD 74x system is a new generation epoxy adhesive system specially formulated for adhesive seals up to 25 mm thick. Its high tenacity and very good fatigue resistance make it a first choice adhesive for high-performance structural bonding subjected to significant dynamic stresses.

		ISOBOND SD 746	ISOBOND SD 745	ISOBOND SD 743
Reactivity level		Fast	Standard	Slow
Initial viscosity (mPa.s)	20 °C	85 700	82 700	89 700
	30 °C	53 700	55 700	64 400
Pot Life (100 g)	20 °C	30 min	01 h 30	02 h 30
	30 °C	15 min	25 min	45 min
Mixing ratio	By weight	100 / 43	100 / 43	100 / 43
	By volume	100 / 50	100 / 50	100 / 50
Shear strength	N/mm ²	32	38	36
% Elongation at max strength	%	3,8	4,05	4,6
Gel Time (1 mm)	20 °C	03 h 40	07 h 20	10 h 50
	30 °C	02 h 15	03 h 55	05 h 45
Waiting time before clamping	20 °C	3 min	10 min	20 min
	30 °C	1 min	5 min	30 min
Clamp Time	20 °C	05 h 30	10 h 30	15 h 30
	30 °C	03 h 30	06 h 45	09 h 30

ISOBOND SR 740 - SD 746 system is a new generation epoxy adhesive system specially formulated for adhesive seals up to 25 mm thick. Its high tenacity and very good fatigue resistance make it a first choice adhesive for high-performance structural bonding subjected to significant dynamic stresses.

- High glass transition temperature
- Multi-material mixed glue
- Low toxicity
- In the process of DNV certification



Epoxy resin ISOBOND SR 740

Appearance		gel
Color		blue
Viscosity (mPa.s)	15 °C	199200 ± 39800
	20 °C	129700 ± 25900
	25 °C	100100 ± 20000
Density	20 °C	1,17
Storage (months)	23 °C	24

Hardener(s)

		ISOBOND SD 746	ISOBOND SD 745	ISOBOND SD 743
Appearance		gel	gel	gel
Color		black	yellow	red
Reactivity level		Fast	Standard	Slow
Viscosity (mPa.s)	15 °C	48350 ± 9700	42500 ± 8500	52000 ± 10400
	20 °C	30870 ± 6170	31300 ± 6300	40500 ± 8100
	25 °C	22800 ± 4600	25000 ± 5000	36000 ± 7200
Density	20 °C	1,04	1,04	1,04
Storage (months)	23 °C	18	18	18

Mixe(s) ISOBOND SR 740 / SD 74x

		ISOBOND SD 746	ISOBOND SD 745	ISOBOND SD 743
Appearance		gel	gel	gel
Color		black	green	red
Mixing ratio				
	By weight	100 / 43	100 / 43	100 / 43
	By volume	100 / 50	100 / 50	100 / 50
Initial viscosity (mPa.s)	20 °C	85 700	82 700	89 700
	30 °C	53 700	55 700	64 400
Density	20 °C	1,15	1,15	1,15

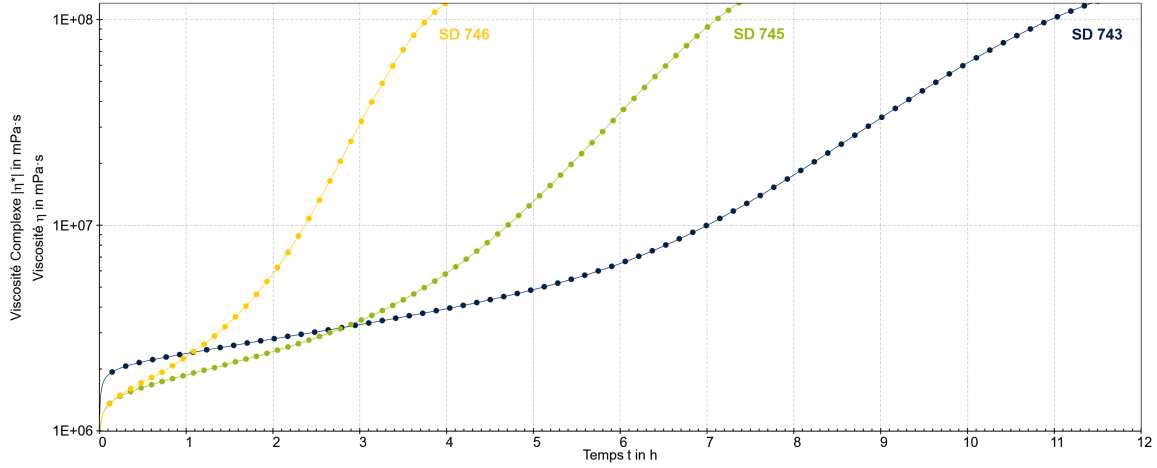
Reactivity ISOBOND SR 740 / SD 74x

20 °C for 100 g	ISOBOND SD 746	ISOBOND SD 745	ISOBOND SD 743
Exothermic temperature (°C)	118	74	42
Exothermic peak time	40 min	02 h 05	03 h 05
Time to reach 50 °C	30 min	01 h 30	

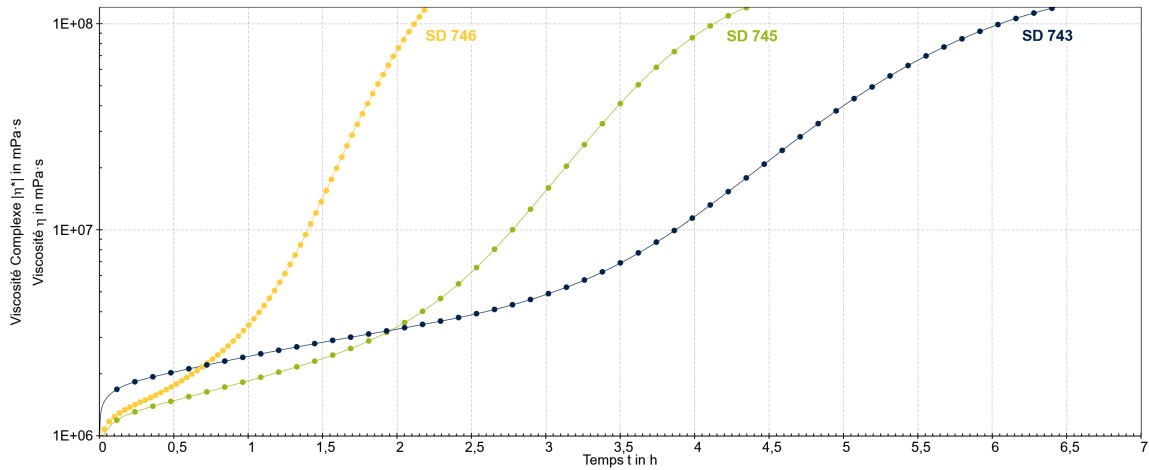
30 °C for 100 g	ISOBOND SD 746	ISOBOND SD 745	ISOBOND SD 743
Exothermic temperature (°C)	135	122	109
Exothermic peak time	20 min	40 min	01 h 20
Time to reach 50 °C	15 min	25 min	45 min

Reactivity on 1 mm thick layer

20 °C



30 °C



Post-curing

The thermomechanical values of an epoxy system can be optimized by implementing a post-curing cycle. The Sicomin laboratory provides several predefined post cure cycles on its data sheets allowing users to compare systems. These experimental cycles are adaptable to your specific applications, taking the following parameters into account:

- Selected epoxy system (Tg max)
- Available heat source
- Room Dimension and Sampling
- Nature of the tooling (thermal conductivity of material)

Many systems can provide good mechanical properties after curing at room temperature and from 18°C for 24 to 48 hours before demolding.

The mechanical properties progress very quickly with a slightly higher temperature of around 40°C for several hours.

Epoxy systems with high Tg and slow and extra-slow hardeners imperatively require post-curing at a higher temperature. It is possible to start the cycle as soon as the exothermic peak passes, but also to start post-curing later after assembly of the various components and before the finishing operations. If the nature of the models and tools is not suitable for high temperatures, we recommend carrying out the first stages up to the maximum admissible temperature then, after cooling and demoulding, continuing the cycle on a suitable former.

For a conventional epoxy system, we recommend carrying out a cycle in steps of 20°C for 4 hours.

Example for an epoxy system Tg max 100°C:

4 hrs at 40°C + 4 hrs at 60°C + 4 hrs at 80°C + cooling to room temperature before un moulding.

There are many short cycle, high temperature epoxy systems that do not fit into this post-cure scheme (pultrusion, hot press, pre-preg). For these systems, initial curing provides maximum thermomechanical performance without post-curing.

We invite you to contact our technical department for your questions on this subject.

Mechanical properties on cast resin :

		ISOBOND SR 740 / ISOBOND SD 746			ISOBOND SR 740 / ISOBOND SD 745		
		7 j TA	16 h 40 ° C	8 h 60 ° C	7 j TA	16 h 40 ° C	8 h 60 ° C
Tensile							
Modulus	N/mm ²	2 025	2 110	2 100	2 340	2 435	2 375
Maximum strength	N/mm ²	38	43	43	44	49	50
Breaking Strength	N/mm ²	37	41	43	44	49	50
Elongation at max strength	%	3,3	3,9	3,8	3,45	3,3	4,05
Elongation at break	%	3,8	5,8	3,9	3,45	3,3	4,05
Flexion							
Modulus	N/mm ²	2 105	2 120	2 085	2 270	2 455	2 370
Maximum strength	N/mm ²	69	77	73	75	84	85
Breaking Strength	N/mm ²	62	60	61	74	82	72
Elongation at max strength	%	4,7	5,8	5,6	4,7	5,04	5,8
Elongation at break	%	6,3	11,6	9,7	4,5	6,2	9,6
Compression							
Yield strength	N/mm ²	62	63	61	70	74	75
Shear strength							
On pure resin	N/mm ²	27	31	32	33	36	38
Alu / Alu bonding	N/mm ²	27	25	30	28,5	29	35
Steel / Steel bonding	N/mm ²	N/A	N/A	N/A	26	27,5	30,2
Stainless / Stainless bonding	N/mm ²	N/A	N/A	N/A	20,3	23,4	27,4
Wood / Wood bonding	N/mm ²	LFT	LFT	LFT	LFT	LFT	LFT
GRP/GRP bonding	N/mm ²	19,3	20,6	26,5	23	25	26,1
Toughness							
G1c interlaminar (J/m ² -CBT)							
DSC glass transition							
Tg1	°C	56	69	64	59	70	78
Tg2	°C			75			78

These curing cycles are applied after a 24-hour hardening period at room temperature, allowing the reaction to freeze and exotherm beyond.

Mechanical properties on cast resin :

		ISOBOND SR 740 / ISOBOND SD 743		
		7 j TA	16 h 40 ° C	8 h 60 ° C
Tensile				
Modulus	N/mm ²	2 165	2 335	2 370
Maximum strength	N/mm ²	40	46	50
Breaking Strength	N/mm ²	30	39	46
Elongation at max strength	%	3,7	3,8	4,6
Elongation at break	%	10	7,8	8,7
Flexion				
Modulus	N/mm ²	2 100	2 390	2 325
Maximum strength	N/mm ²	68	46	81
Breaking Strength	N/mm ²	38	39	71
Elongation at max strength	%	4,7	3,8	5,5
Elongation at break	%	12,3	7,8	8,5
Compression				
Yield strength	N/mm ²	67	71	70
Shear strength				
On pure resin	N/mm ²	30	34	36
Alu / Alu bonding	N/mm ²	24	28,5	27
Steel / Steel bonding	N/mm ²	N/A	N/A	N/A
Stainless / Stainless bonding	N/mm ²	N/A	N/A	N/A
Wood / Wood bonding	N/mm ²	LFT	LFT	LFT
GRP/GRP bonding	N/mm ²	27	26,5	24,5
Toughness				
G1c interlaminar (J/m ² -CBT)				
DSC glass transition				
Tg1	°C	51	55	68
Tg2	°C			68

These curing cycles are applied after a 24-hour hardening period at room temperature, allowing the reaction to freeze and exotherm beyond.

400 ml two component ACF cartridge available



Volume : 400mL

Ratio : 2 : 1

Matériau : PP



Référence : ACF ORBIS 10-24

Nbr d'éléments : 24

Longueur : 156 mm

Ø Tube : 10 mm

Volume : 8,8 ml

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 - Ramp from -5 to 180 °C at 20 °C/min
T_g values are recorded at midpoint using tangent method.
T_g1 : 1^{er} pass
T_g2 : 2nd pass

Glass transition DTMA: Temperature ramp 0 °C to 180 °C @ 2°C/min under normal atmosphere
 ASTM D4065-12

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)
NC: No information Communicated
NB: 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%

LEGAL NOTES:

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If our responsibility should nevertheless be involved, it would be, for all the damages, limited to the value of the goods supplied by us and processed by the customer. We guaranty the non-reproachable quality of our products, in the general context of sales and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be