Tooling & Composites

Product Data Sheet
Version 01 / 2018

Biresin® LS
Laminating and Multi-purpose resin

Areas of Application
- Manufacture of precise, robust laminates with glass and/or carbon fibres
- Manufacture of laminated foam and compression moulds
- Backstampings of moulds, models, negatives and tools
- Also used for coupling layers

Product Benefits
- Multi-purpose application with different hardeners
- Good soaking and wetting properties
- For high addition of fillers
- With **Biresin® F4 (B)** for longer potlife and lower viscosity
- With **Biresin® S10** (B) for shorter potlife and thinner layers
- Additional hardeners: see separate leaflet

Description
- Basis: Two component epoxy system
- Component A: **Biresin® LS**, epoxy resin, yellowish-transparent, unfilled
- Component B: **Biresin® LS**, standard hardener, amine, colourless-transparent, unfilled
- Component B: **Biresin® F4**, amine, colourless, unfilled
- Component B: **Biresin® S10**, amine, amber, unfilled
- Component B: **Biresin® S12**, amine, amber, unfilled

Processing Data		Component A	Component B			
Individual components		**Biresin® LS**	**Biresin® LS**	**Biresin® F4**	**Biresin® S10**	**Biresin® S12**
Viscosity, 23°C	mPa.s	~ 1,250	~ 40	< 10	~ 3,500	~180
Density, 25°C	g/ml	1.14	0.98	0.87	1.05	1.0
Mixing ratio A : B	in pbw	100	12	18	22	16
		Mixtures				
Mixed viscosity, 23°C	mPa.s		~ 580	~ 350	~ 3,500	~1200
Potlife, 500 g, RT	min		55	80	10	60
Demoulding time, RT	h		12	16	8	12

Physical Data (approx. values)										
Biresin® LS (A) with component B			**Biresin® LS**		**Biresin® F4**		**Biresin® S10**		**Biresin® S12**	
Density	ISO 1183	g/cm³	1.2		1.2		1.2		1.2	
Curing conditions	time temperature		14 d RT	2 h 80°C	14 d RT	2 h 80°C	14 d RT	2 h 80°C	14 d RT	2 h 80°C
Shore hardness	ISO 868	-	D 83	D 83	D 80	D 82	D 83	D 84	D 82	D 84
E-Modulus	ISO 178	MPa	2,420	2,630	2,440	2,570	2,900	2,900	2,500	2,500
Flexural strength	ISO 178	MPa	95	107	88	94	108	117	96	103
Compressive strength	ISO 604	MPa	104	106	91	94	110	112	102	98
Tensile strength	ISO 527	MPa	69	74	67	69	69	74	71	74
Impact resistance	ISO 179	kJ/m²	10	14	18	44	16	21	19	16
Heat distortion temp.	ISO 75B	°C	51	70	46	53	53	82	52	72

Packaging

Individual components	**Biresin® LS** (A)	220 kg; 50 kg; 20 kg net
	Biresin® LS (B)	2.4 kg net
	Biresin® F4 (B)	2.5 kg net
	Biresin® S10 (B)	2.5 kg net
	Biresin® S12(B)	15 kg; 2.5 kg net;

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Processing

- The material, processing and mould temperature must be from 18 to 25°C.
- After mixing the two components it is easily possible to incorporate additives if necessary.
- Biresin® LS is applied quickly and easily due to its low viscosity. It will easily wet out fibres and incorporate high levels of fillers and powders with high binding force.
- The ratio between resin and selected fibre must be determined and reliably controlled.
- For laminates glass fibres with binding twill are better than binding cloth because of its better suppleness.
- It is adviced to lay up a balanced laminate to avoid distortion when de-moulding.
- Void-free glass and carbon fibre laminates are possible by processing under vacuum bag conditions to remove excess air and resin.
- To clean brushes or tools immediately Sika® Reinigungsmittel 5 is recommended.

Storage

- Minimum shelf life of Biresin® LS (A), Biresin® LS (B) and Biresin® S10 (B) is 24 months and of Biresin® S12 (B) and Biresin® F4 (B) is 12 months under room condition (18 - 25°C), when stored in original un-opened containers.
- After prolonged storage at low temperature, crystallisation of resin (A) may occur. This is easily removed by warming up for a sufficient time to a minimum of 60°C.
- Containers must be closed tightly immediately after use to prevent moisture ingress. The residual material needs to be used up as soon as possible

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety related data.

Disposal considerations

Product Recommendations: Must be disposed of in a special waste disposal unit in accordance with the corresponding regulations.
Packaging Recommendations: Completely emptied packagings can be given for recycling. Packaging that cannot be cleaned should be disposed of as product waste.

Value Bases

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

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