Technical Datasheet

LH 28-1 / TM

Basis	**high temperature resistant laminating resin**
Resin	**LH 28-1**
Hardener	**TM**
Colour	brown transparent

Applications

- Vacuum forming tools
- Prepreg tools
- hot gluing tools
- Blow moulds
- Polyester injection moulds
- Polyester press tools
- Vacuum infusion

Properties

- very high heat resistance, depending on post curing till 175 °C
- long pof life
- low exotherm
- heat curing

Processing data

Product		**Mixture LH 28-1 / TM**	**Resin LH 28-1**	**Hardener TM**
Colour		brown transparent	brown transparent	brown transparent
Mixing ratio	**p. b. w.**		**100**	**40**
Viscosity at 25°C	mPas	750 ± 100	800 ± 150	375 ± 75
Density at 20°C	g / cm^3	1,10 ± 0,03	1,15 ± 0,03	0,97 ± 0,02
Pot life 200 g / 20°C	min.	240 - 360	-	-
Curing time at RT	hrs.	24 - 48	-	-
Post curing	Time in h/ Temperature in °C	4 / 40 4 / 60 4 / 100 4 / 135 4 / 160	-	-

Physical data

Properties	**Inspect. requirem.**	**Unit**	**Value**
Flexural strength	EN ISO 178	MPa	95 ± 10
Flexural elongation at break	EN ISO 178	%	4 ± 0,6
Flexural modulus	EN ISO 178	MPa	2800 ± 250
Flexural elongation at break	ISO 37	%	-
Impact resistance (Charpy)	EN ISO 179	kJ/m^2	16 ± 6
Compressive strength	EN ISO 604	MPa	85 ± 8
Shore hardness	DIN ISO 7619-1	Shore D	85 ± 3
Heat resistance (HDT)	DIN EN ISO 75 B	°C	175 ± 3
Glass transition temperature T_g	DSC	°C	182
Coefficient of thermal expansion	internal test / Dilatometer	$10^{-6}K^{-1}$	-
Linear shrinkage	internal	%	-

Sales units (packages)

Packing size	B-Pack	LH 28-1 / TM	Resin 9 x 0,600 kg / Hardener 9 x 0,240 kg = 7,560 kg
Units	Resin	LH 28-1	20,000 kg
	Hardener	TM	8,000 kg

Processing instructions

The material and processing temperature should be between 18 and 25 °C.
The resin and hardener should be mixed intensively and as free of bubbles as possible at room temperature.
A heating rate of approx. 5 - 10 °C/hour is optimal. For difficult geometries, the use of a support mould is recommended.
The cooling rate should ideally be approx. 20 °C /hour.

In General

ebalta LH 28-1 is a two-component epoxy laminating resin which pre-cures at room temperature and can be used at temperatures up to 175 °C depending on the heat treatment.
Because this laminating resin system does not contain any fillers, it has good wetting properties and allows for a very high glass fabric content. This results in a very low coefficient of thermal expansion and high strength.
For backfilling heat-resistant moulds and tools, **ebalta** LH 28-1 is suitable as a binder resin for aluminium grit.
At room temperature, the system is fully cured after 7 days and can only be used up to 60 °C.

High temperature resistance is achieved by gradual heat treatment. Slow cooling down to room temperature is necessary, see "Processing instructions".

Glass transition temperature (TG) 95°C: After 4 h at 40 °C + 4 to 10 h at 60 °C.
Glass transition temperature (TG) 139°C: After 4 h at 40 °C + 4 to 10 h at 60 °C + 4 h at 100 °C
Glass transition temperature (TG) 156°C: After 4 h at 40 °C + 4 to 10 h at 60 °C + 4 h at 100 °C + 4 h at 135 °C
Heat distortion temperature (HDT) ISO 75 B - 158 °C: After 4 h at 40 °C + 4 - 10 h at 60 °C + 4 h at 100 °C + 4 h at 135 °C
Heat distortion temperature (HDT) ISO 75 B - 175 °C: After 4 h at 40 °C + 4 - 10 h at 60 °C + 4 h at 100 °C + 4 h at 135 °C + 4 h at 160 °C
Glass transition temperature (TG) 182°C: After 4 h at 40 °C + 4 to 10 h at 60 °C + 4 h at 100 °C + 4 h at 135 °C + 4 h at 160 °C
The entire heat treatment, but at least the first step, must be carried out on the mould.

Storing

In temperature-controlled rooms at 18 - 25°C
Crystallisation occurring under unfavourable storage conditions can be reversed by heating to approx. 60 °C for some hours.
Always reseal opened containers immediately in a moisture-proof manner and use as soon as possible.
Please refer to the product labels for the shelf life of the material.

Safety measure

When processing this product, the protective measures recommended by the Employers' Liability Insurance Association of the Chemical Industry should be observed. Follow safety advice.

Waste Disposal

The cured materials can be disposed of as domestic or industrial waste after consultation with the relevant authorities.
Crystallisation occurring under unfavourable storage conditions can be reversed by heating to approx. 60 °C.
Always reseal opened containers immediately in a moisture-proof manner and use as soon as possible.
Please refer to the product labels for the shelf life of the material.