

Description

The lamination systems without filling mediums, intended to be used for laminating of materials from glass, carbon, or Kevlar fibres. Letoxit PR 100 resin is produced on the basis of modified epoxy resin of Bisphenol A type.

Modification agent decreases resin viscosity and prevents crystallization of resin during storage at low temperature up to +5°C. The resin is considered to be physiologically well compatible. Hardeners are of amine type and do not contain nonylphenol. Due to the resin's low viscosity and thereby also lower interfacial tension it shows good wetting ability of lamination textiles and materials when combined in mixture with the Letoxit EM 315, EM 316, EM 317 hardening agents.

Application

Lamination compounds are intended to be used for production of components stressed in extreme conditions, e.g. aircraft and sail plane components, components for construction of models, gliders, construction of sporting boats, transport vehicle bodies, forms etc. Lamination compounds are suitable for all types of manufacturing, such as manual laminating, winding as well as when using pressure or vacuum.

The optimum processing temperature of mixture lies in temperature range between 20 – 25°C. A higher processing temperature is also possible, but it shortens the pot-life of the compounds. The mixture ratio must be followed as precisely as possible. Higher or lower dosage of the hardener does not result in acceleration or deceleration of the reaction, but leads to imperfect hardening and thereby also deterioration of mechanical properties. The immixture must be carried out properly. Mix it so long until the compound has no uniform transparent color and until there are no unstirred hardener „clouds“.

Do not mixture a big amount. During exothermic curing reaction develop big amount of heat, which could cause overheating of mixture over 200oC.

If you could combine the lamination systems with polyester gelcoat, it is recommended before application the test on adhesion and compatibility. Unsuitable combination could cause flaking of the gelcoat, creation of bubbles or rents.

Resin specification

	Standard	Resin Letoxit PR 100	Hardener Letoxit EM 315, EM 316, EM 317
Density at 25°C (g/cm ³)	PN-5M-11	1,16+/- 0,01	0,94 – 0,97
Viscosity at 25°C (mPa.s)	PN-5M-01	600-800	80 – 140
Epoxide equivalent	PN-5M-20	0,58	-
Hydrogen equivalent	-	-	64
Amine value (mg KOH/g)	PN-5M-06	-	450-550
Color	DIN ISO 4630	max. 6	transparent blue



APPLICATION METHOD

Letoxit® PR 100
Letoxit® EM 315, 316, 317

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Processing details

	Letoxit PR 100 + Letoxit EM 315	Letoxit PR 100 + Letoxit EM 316	Letoxit PR 100 + Letoxit EM 317
Processing temperature	18 – 30 °C		
Viscosity of mixture at 25°C (mPa.s)	300-700		
Storage at 15 – 25 °C	minimally 6 months in their carefully sealed original containers		
Curing	24 hours at temperature 20-25 °C		
Post curing	15 hours at 50-60°C		

Mixture ratio

	resin Letoxit PR 100 : hardener Letoxit		
	EM 315	EM 316	EM 317
Parts by weight	100 : 37 ± 1		
Parts by volume	100 : 45 ± 1		
Vitality of systems for 200 g at 25oC.	50-60 min.	70-90 min.	100-120 min.

Glass transition temperature (Tg)

Curing at 20°C for 24 hours with follow up post curing:

Post curing	Norm	10h 40°C	10h 50°C	10h 60°C	10h 70°C	10h 80°C
PR 100 EM 315	PN-5M-03 (DTA)	56°C	63°C	68°C	72°C	73°C
Post curing	Norm	6h 150°C				
PR 100 EM 317	PN-5M-42 (DSC)	154°C				



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APPLICATION METHOD

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Letoxit® PR 100
Letoxit® EM 315, 316, 317

Mechanical properties of unreinforced resin

Curing: 24 h 20 - 25°C + 15 h 50 – 55°C	Norm	Resin Letoxit PR 100 + hardener Letoxit EM 315, EM 316, EM 317
Density at 25 °C (g/cm³)	PN-5M-11	1,14
Flexural strength (MPa)	CSN EN ISO 178	106,126
Modulus of elasticity (GPa)	CSN EN ISO 178	2,9-3,1
Tensile strength (MPa)	DIN 53 455	65-70

Packing

Resin and hardener comes in PE-can of 5, 10 and 20kg and in 200 kg drums.