

## Description

The lamination compound without filling mediums, intended to be used for laminating of materials from glass, carbon or Kevlar fibres. The Letoxit PR 102 resin is produced on the basis of modified epoxy resin of bisphenol A type. When storing Letoxit PR 102 for longer period of time or when storing it at temperatures below + 15°C, as the case may be, it may crystallize (milky coloration of the resin, accompanied by increased viscosity). By heating the Letoxit PR 102 resin approximately to 40°C you will bring it to its original state without any changes to its quality and characteristics. The resin is considered to be physiologically well compatible. Due to the resin's low viscosity and thereby also lower interfacial tension, it shows good wetting power of lamination textiles and materials when combined in mixture with the Letoxit EM 400 hardening agent.

## Application

The lamination compound is intended to be used for production of components stressed in extreme conditions, e.g. aircraft and sailplane components, components for construction of models, construction of sporting boats, transport vehicle bodies, forms etc. The lamination compound is suitable for all types of manufacturing, such as manual laminating, winding as well as when using pressure or vacuum.

The optimum temperature for processing of the mixed compound lies in the temperature range of 20 – 25 °C. A higher processing temperature is also possible, but it shortens the pot life of the compound. It can be said that an increase by 10°C shortens the pot life approximately to one half. 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 colour and until there are no unstirred hardener "clouds". Do not mix large quantities. The exothermic hardening reaction generates large volume of heat, which could lead to an overheating of the compound over 200°C, eventually to "burning" and thus its deterioration. In case you wish to combine the lamination compound with polyester gel coats, we recommend carrying out the adhesion and compatibility test in advance. An unsuitable combination could result in flaking of the gel coat, creation of bubbles or cracks.

## Resin specification

	Norm	Resin Letoxit® PR 102
Density at 25°C (g/cm <sup>3</sup> )	PN-5M-11	1,15
Viscosity at 25°C (mPa.s)	PN-5M-01	300 - 600
Epoxy equivalent	PN-5M-20	0,6
Colour/Gardner	DIN ISO 4630	max. 6

## Hardeners specification

	Norm	Hardener Letoxit® EM 400
Density at 25°C (g/cm <sup>3</sup> )	PN-5M-11	0,96



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Letoxit® EM 400

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<b>Viscosity at 25°C (mPa.s)</b>	PN-5M-01	20-60
<b>Hydrogen equivalent</b>	-	62
<b>Amine value (mg KOH/g)</b>	PN-5M-06	480-550
<b>Colour</b>	-	transparent blue

## Processing details

	<b>Letoxit® PR 102 + Letoxit® EM 400</b>
<b>Processing temperature</b>	18 – 30 °C
<b>Viscosity of mixture at 25°C</b>	200 - 400
<b>Curing</b>	24 hours at temperature 23 °C
<b>Post curing</b>	15 hours at 50-60°C up to 15 minutes at 105°C

## Mixture ratio, pot-life

	<b>Resin Letoxit® PR 102 : hardener Letoxit® EM 400</b>
<b>Parts by weight</b>	100 : 37 ± 2
<b>Parts by volume</b>	100 : 44 ± 2
<b>Pot-life pro 200 g při 25°C</b>	50-60 min

## Mechanical properties of unreinforced resin

Curing: 24 h 20-25°C + 15 h 50-55°C	<b>Norm</b>	<b>Resin Letoxit PR 102 + hardener Letoxit EM 400</b>
<b>Density at 25 °C (g/cm<sup>3</sup>)</b>	PN-5M-11	1,14
<b>Flexural strength (MPa)</b>	CSN EN ISO 178	125
<b>Modulus of elasticity (GPa)</b>	CSN EN ISO 178	3,5
<b>Tensile strength (MPa)</b>	DIN 53 455	67

## Glass transition temperature (T<sub>g</sub>)

Curing at 20°C for 24 hour with post curing:

<b>Poscuring</b>	<b>Norm</b>	<b>Letoxit® PR 102 Letoxit® EM 400</b>
10h 40°C	PN-5M-03	58°C
10h 50°C		65°C

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10h 60°C		70°C
10h 70 °C		72°C
10h 80 °C		74°C

## Mechanical properties of reinforced resin

Example: GRC – with glass fibers toughened composite: 12 coatings of fabric Vertex 355 g/cm<sup>3</sup>, total thickness 3 mm

	Norm	Resin Letoxit PR 102 + hardener Letoxit EM 400
<b>Flexural strength (MPa)</b>	ČSN EN ISO 178	480
<b>Modulus of elasticity (GPa)</b>	ČSN EN ISO 178	22
<b>Tensile strength (MPa)</b>	DIN 53 455	482

## Packing

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