

Description

Letoxit KFL 120 structural film adhesive is an adhesive designed for high-strength bonds. It serves to adhesive bond metallic materials, in particular those of aluminum alloys, as well as many non-metallic materials. Especially it fits for manufacture of sandwich parts including honeycomb structures. The adhesive is one-component, based on modified epoxy resins, and contains suitable curing system. Bonded joints exhibit very good mechanical properties when loaded under temperatures ranging from -75°C to $+100^{\circ}\text{C}$. Therefore the adhesive is particularly useful for bonding aircraft structures, land means of transport (both road and rail) and for other demanding applications.

Appearance

The adhesive comes in the form of dark gray film $0.3_{-0.05}$ mm thick, flexible and plastic at room or elevated temperatures.

Mixing

Mix 100 weight parts of A component with 40 weight parts of B component, mix thoroughly until an even colour shade is achieved. Also an automatic mixer can be employed. To guarantee maximum strength of the bonded joint, the accuracy of $\pm 5\%$ must be kept for B component.

Surface treatment

Surfaces to be bonded must be free from any mechanical impurities and traces of oil or grease and must be dry. Surface pretreatment of parts to be adhesive bonded is a decisive factor affecting strength of the bonded joint. Some materials require special surface pretreatment techniques. Joint between the parts to be bonded must be uniform in order to enable proper contact between surfaces of the bonded parts and the adhesive, which will prevent forming of air bubbles.

Note: If the adhesive is not applied to the pretreated surface directly, it is advisable to protect such surface by applying Letoxit PFL 120 primer.

Adhesive application

Using scissors, knife or another suitable cutter, cut the film to size corresponding to shape of parts to be bonded. Then peel off the release paper backing from the profile and lay the adhesive film on to one surface to be bonded, press it to the surface and smooth out thoroughly to prevent formation of air bubbles beneath. Then peel off the other polyethylene interleave and attach the other surface to be bonded. In this way even more complicated structures of many parts can be assembled for adhesive bonding. It is recommended to work at a temperature of 20°C minimum; when bonding section surfaces and more complex configurations, it is advisable to work on so-called heated bench (to maintain temperature of surfaces to be bonded between 30°C to 40°C) where the film adhesive becomes very ductile and more adherent.

Curing

The Letoxit KFL 120 adhesive cures at $120-125^{\circ}\text{C}$ for 60 minutes. Curing time begins to run from the instant when the temperature inside the joint reaches the stated temperature. In the process of curing the bonded joint is fixed by applying a pressure of $0.05-0.1$ MPa. No volatiles are released either at pretreatment of the assembly to be bonded or at cure cycle



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Properties of cured bonded joint

	Loading temperature	Strength
Shear strength at tensile loading according to CSN 66 8510 standard	-75°C	30-36 MPa
	+20°C	36-41 MPa
	+60°C	35-38 MPa
	+80°C	26-37 MPa
	+100°C	25-35 Mpa
Peel strength in accordance with CSN 668516, DIN 53 282, ISO TC 61/SC11, ASTM D 1876-72 standards	+20°C	4-7 N/mm
Peel strength in accordance with DIN 53289, ISO TC 61 2144E	+20°C	280 N
Peel strength in accordance with DIN 53 295	+20°C	9.6 N/mm

Packing

The adhesive is supplied in the form of film 250 mm wide, protected with a polyethylene interleave on one surface and a silicone paper backing on the other. It is wound around a tube in a roll weighing 25 kg maximum (usually rolls of 5 kg are supplied – upon customers' request).

Storage

The adhesive can be stored for 3 months at temperatures up to +20°C, for 6 months at +5°C and up to 1 year at -18°C, without any change of its properties. Be sure not to exceed +30°C at transport and storage!

Occupational safety

The adhesive contains epoxy resins and a curing agent of amide type; repeated exposure or contact may result in allergies of extremely susceptible persons. Though no volatiles are released from the adhesive and no contact with skin occurs provided work procedures are properly observed, all members of personnel must wear protective equipment and must be made familiar with labor safety and hygiene. No eating, drinking and smoking at work. Always wash hands with soap and water after using this material and apply a regenerating cream on dried skin.

First aid

If accidentally swallowed, rinse mouth with water, drink about 0.5 liter of lukewarm water, induce vomiting and seek medical attention without delay. If in eyes, flush immediately with clean water and see physician for medical treatment. If on skin, wash affected area with soap and water, apply a reparative cream after drying.

Disposal of leftovers and containers

Leftovers of the adhesive are to be cured under the mentioned cure cycle (e.g. together with bonded parts). Cured adhesive is not hazardous and can be disposed of along with municipal waste.

Producer and Supplier

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