

PRELIMINARY TECHNICAL DATA SHEET

Version: 1/2021

LETOXIT® KFL 130-170

Application

Letoxit KFL 130-170 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. Structure of adhesive and a carrier prevents leaking from bonded joints. Bonded joints exhibit very good mechanical properties when loaded under temperatures ranging from -75°C to $+110^{\circ}\text{C}$. Therefore the adhesive is particularly useful for bonding aircraft structures, land means of transport (both road and rail) and for other demanding applications.

Type

one-component epoxy adhesive with hardening system

Appearance

The adhesive comes in the form of white to gray film 0.15 – 0.17 mm thick with a carrier, (polyester non-woven 17 gr) flexible and plastic at room or elevated temperatures.

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.

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.

Curing

The Letoxit KFL 130-170 adhesive cures
at $120-125^{\circ}\text{C}$ for 20 minutes,
at $100-105^{\circ}\text{C}$ for 60 minutes
at 90°C for 90 minutes
and at $80-85^{\circ}\text{C}$ for 3 hours.

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	24-29 MPa
	+20°C	29-34 MPa
	+60°C	28-31 MPa
	+80°C	21-30 MPa
Shear strength (at tensile loading as per CSN 66 8510, DIN 53 283, ASTM D 1000-72 standards) after Kataplasma (21 days at 70°C, 16 days at -30°C):	+20°C	25-28 MPa
Shear strength (at tensile loading as per CSN 66 8510, DIN 53 283, ASTM D 1000-72 standards) after 20 days in salt chamber (DIN 50 021):	+20°C	23-26 MPa
Peel strength accordance with CSN 668516, DIN 53 282	+20°C	2-4 N/mm

Glass transition temperature of the cured adhesive is 90-110°C.

Packing

The adhesive is supplied in the form of film or 1000 mm wide, protected with a polyethylene interleave on one surface and a silicone paper backing on the other. It is wound on a tube in a roll of 70 ml

Storage

The adhesive can be stored for 1 month at temperatures up to +20°C, for 3 months at +5°C and up to 1 year at -18°C, without any change of its properties. Be sure not to exceed +25°C during transport and storage!

Producer and Supplier

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