

FiReP GFRP Bars - Cutting

Cutting on construction site

The GFRP Bars are normally supplied in standard lengths. That may require cutting of the GFRP Bars on construction site / warehouse. It's possible and easy to cut FiReP Bars on site. For cutting saws, flexes or similar devices are suitable. The use of bolt cutters and drop shears is not permissible.

Possible Risks

1. Skin Irritations

During cutting GFRP material develops a fine cutting dust, containing glass material and resin. Contact with the cutting dust should be avoided by use of appropriate protective clothing. It is possible that the residuals, including small glass fibres will cause skin irritations. These irritations are mechanical irritations and no allergic effects. It may cause in itchiness and sensitivity of the skin that can be eliminated by washing with water. GFRP is an inert and unsolvable material that does not interact with other materials or organism.

2. Dust formation

To avoid the dust to be inhaled a dusk mask should always be worn during cutting. It cannot be definitely excluded that respirable particles can form while cutting, but researches showed that this is very unlikely for glass fibres. The glass fibre originally has a diameter of 15-34µm. During cutting primarily resin bound grain-dust will develop.

Only particles that have a length-diameter-ratio of higher than 3:1, a length of <math><5\mu\text{m}</math> and a diameter of <math><3\mu\text{m}</math> are considered to be respirable. The maximal workplace concentration (MAK) is given to be 0.25 respirable fibres per ml Volume. Such a concentration will not occur when cutting GFRP Bars. More likely no respirable fibres will develop at all as studies showed that lengthwise splitting of fibres will not happen when machining.

The possibility of fine dust explosion by cutting in enclosed spaces is ruled out.

Handling Recommendation for risk minimization

Based on the above presented points the risks of harms by glass dust is very low. Nevertheless, it is recommended to use a low speed diamond blade with water cooling. The low-speed cutting produces glass dust with higher diameter than by use of high speed cutting. Water will bind a big part of the dust. Open air cutting is preferred.

We highly recommend wearing protective equipment as gloves, dust mask and protective glasses during cutting activity.

After skin got in contact with GFRP cutting dust wash with water.