

PRESS RELEASE

Waldkraiburg, September 2019

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Hybrid materials for mobility of the future

KRAIBON® – the bonding material for hybrid vehicle body parts

The world has gone mad for hybrid and electric means of transport, making it necessary to devise new concepts when it comes to the drive and bodywork of our future vehicles alike. KRAIBON® is a thin film made of non-cross linked rubber and, thanks to its multitude of properties, is perfect for hybrid vehicle body parts. The high-tech material from Gummiwerk KRAIBURG offers great potential for the following applications: those which necessitate a high energy intake, those which require vibrations to be absorbed, those involving various thermal expansions and those which need electrochemical corrosion to be prevented. Its excellent ability to bond with other materials means new, high-performance compounds can be created. What's more, integrating KRAIBON® into an established production process is simple.

Crash-proof and resistant to corrosion

Electric vehicles are becoming increasingly popular on the automobile market. However, this new technology presents challenges which have yet to be overcome. One of them is protecting the sensitive lithium-ion batteries used in electric cars. In order to ensure road safety, it is necessary to make sure that these easily damaged, flammable batteries are safely shielded in the event of a crash. KRAIBON®'s high energy absorption in a multi-material layered structure provides reliable protection for battery cases in electric vehicles. Depending on the layer structure, two to three times the amount of energy is absorbed in the event of accident in comparison to constructions without elastomers. As such, the battery is protected against damage from rocks or other vehicles.

KRAIBON® also has good electric insulation properties of elastomers, meaning that it can prevent corrosion between different types of material. The high viscosity of KRAIBON® in all temperature ranges enables constant layer thickness, which reliably prevents any electric transition.

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In comparison to current solutions on the market, KRAIBON® offers numerous advantages and can be used in a multitude of ways for vehicle body parts - in A, B or C pillars, in aeroplane fuselage and wings, and even in load-bearing components for railway vehicles.

Excellent shelf life, short cycle time, one production step

In addition to its high energy absorption - far superior to the standard solutions currently on offer - as well as the associated potential to save weight and its excellent electrical insulation, KRAIBON® is also a cut above the rest thanks to the numerous other advantages it offers when it comes to processing and storage. The thin rubber film can be integrated into existing manufacturing processes for multi-material components in just one single step - no need to add other bonding agents.

As a result, any additional, costly processing steps and the errors they can cause are eliminated and the energy consumption of the entire manufacturing process is reduced. At the same time, KRAIBON® also stands out from the crowd thanks to its short cycle times which are suitable for large series production. What's more, as a bonding layer, KRAIBON® opens up constructional design possibilities which have not been an option until now.

Yet another advantage offered by KRAIBON® is its excellent shelf life. It can be stored six times longer than the usual bonding materials. Many adhesive films can be stored for around one month at room temperature, whereas KRAIBON® can be stored for at least six months. If a deep-freeze facility is used, the shelf life of the material increases even by a factor of three to four. This allows processors to save money as well as reap the benefits when it comes to handling the material.

Dimensional compensation of thermal expansion

KRAIBON® also has an excellent ability to compensate thermal expansions. Changes in temperature can result in different materials having different lengths. This, in turn, leads to stresses in the bonding layer. By implementing an elastic intermediate layer made of KRAIBON®, this can significantly reduce these stresses and, in doing so, prevent the component from warping, cracking, breaking or completely failing, thanks to the material's flexible properties. By combining the excellent mechanical properties of fibre-reinforced plastics, metals or aluminium with the elasticity of elastomers, conventional solutions are exceeded by hybrid

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composites. Not only is the material suited for use in the automotive industry, but it is also optimal for use in the aerospace sector, for railway vehicles, in the sports industry and orthopaedics.

About Gummiwerk KRAIBURG

Gummiwerk KRAIBURG GmbH & Co. KG is a company of KRAIBURG Holding GmbH & Co. KG and currently employs about 400 people. Gummiwerk KRAIBURG, a leading manufacturer of rubber and silicone compounds, has been developing and producing highly customised solutions for the demands of customers and markets for more than 70 years. KRAIBURG rubber and silicone compounds are used in the automotive sector, in machine construction, oil and gas production, the roller industry and by numerous other manufacturers of moulded rubber components.

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