

## Press Release

**New FR3 series for highly effective fire protection**

**Waldkraiburg, October 2025**

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### **With its FR3 compounds, KRAIBURG TPE is setting new standards for meeting the highest fire safety requirements**

With the new FR3 series, KRAIBURG TPE has now developed the third generation of compounds for use in environments that place the highest demands on fire protection. All requirements of the European standard for railway applications DIN EN 45545-2 have been met. In addition to their fire protection properties, TPE compounds in the FR3 series have other material properties that make them ideal for use in demanding environments, such as very good compression set values and improved tear resistance. Since power cables are often installed with multi-component plastic parts, excellent PP adhesion and processing in standard injection molding and extrusion processes are also important.

Effective fire prevention is essential, especially in places where large numbers of people gather in rooms within buildings or on public transport—even more so when escape routes are limited. High safety standards therefore always apply to passenger transport by rail. The fire safety requirements imposed on manufacturers of train parts and components are correspondingly high. Particular attention is paid to materials used in the field of energy supply, for example for cable management systems and cable glands or for seals.

#### **Best fire protection properties for rail transport**

With the FR3 series, KRAIBURG TPE has now launched the third generation of thermoplastic elastomers that meet special fire protection requirements. All specifications of the European standard for railway applications – fire protection in rail vehicles (DIN EN 45545-2, in particular R22 HL3 and R23 HL3) – have been met. In addition to their specific fire protection properties, TPE compounds in the FR3 series have outstanding material properties that make them ideal for applications in this demanding environment, including

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very good tear resistance values for halogen-free and flame-retardant TPE compounds. In addition, the soft and elastic TPE materials of the FR3 series have improved resilience properties compared to their predecessors. Especially in the temperature range between 23 °C and 70 °C, these materials score highly in comparative tests with predecessor products and are therefore suitable for many sealing applications. Since current-carrying assemblies are made from polyolefins (PP), among other materials, excellent PP adhesion is one of the important requirements for the new FR3 TPE. In addition, they can be processed using proven thermoplastic injection molding and extrusion processes. Due to the thermoplastic material structure, cold runner distributors and 1-component defective parts, for example, can be shredded and added back into the in-process recycling system.

One of the key requirements for comprehensive flame protection in this market is now that the materials used are halogen-free: this is one of the basic prerequisites for the use of materials in train parts and components. Unlike halogen-containing materials, the FR3 series guarantees significantly lower toxicity in the event of a fire when smoke is generated, thus reducing the risk of harm to people who come into contact with it.

### **Confirmation by the Yellow Card certification program**

While low smoke density and toxicity can be verified by railway standard tests, the UL94 vertical burning test ensures that the compounds react in a self-extinguishing manner in the event of a fire. The FR3 series guarantees V0 flame retardant classification even with a sample thickness of 1.5 mm. The outstanding test results were confirmed by the UL certification program, which allows these FR3 products to be awarded a Yellow Card. Such a Yellow Card provides the necessary prerequisite for UL listing and serves as proof that the required safety, quality, and performance requirements for TPE are met. A corresponding certificate is a strong selling point on the market.

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Another important test requirement for flame retardancy is the glow wire test. Since there is a risk that live cables may ignite even without direct contact with flames as a result of high temperatures, this test is particularly relevant for materials used in or in the immediate vicinity of power cables. The FR3 series passes the test at 960 degrees Celsius, the glow wire limit temperature, without forming flames. These specially developed compounds therefore meet all railway-related requirements – in all color and hardness variants.

“Thanks to their low smoke toxicity, our halogen-free, flame-retardant TPEs improve safety and health protection in the event of a fire,” summarizes Johanna Schmid, market specialist for industrial applications: “In addition, users of halogen-free solutions benefit from easier disposal at the end of the product life cycle.”



**Picture:** KRAIBURG TPE has developed new thermoplastic elastomers for highly effective fire protection. *(Picture: KRAIBURG TPE)*

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### Information for press representatives



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### About KRAIBURG TPE

KRAIBURG TPE ([www.kraiburg-tpe.com](http://www.kraiburg-tpe.com)) is a global manufacturer of custom thermoplastic elastomers. KRAIBURG TPE was founded in 2001 as an independent business unit of the KRAIBURG Group and is now the industry's competence leader in the field of TPE compounds. The company's goal is to provide safe, reliable and sustainable products for customer applications. With more than 700 employees worldwide and production sites in Germany, the USA and Malaysia, the company offers a large product portfolio for applications in the automotive, industrial and consumer goods industries, as well as for the strictly regulated medical sector. The established THERMOLAST®, COPEC®, HIPEX® and For Tec E® product lines are processed by injection molding or extrusion and offer manufacturers numerous advantages not only in processing but also in product design. KRAIBURG TPE is characterized by its innovative strength, global customer orientation, customized product solutions and reliable service. The company is ISO 50001 certified at its headquarters in Germany and holds ISO 9001 and ISO 14001 certifications at all its sites worldwide.