

### **Smooth and Super-Quiet: Triblock Copolymer Hybrar Damps Noise and Vibration in Vehicles**

**Triblock copolymer Hybrar from Kuraray has outstanding damping properties - for a smoother and quieter automobile ride**

**Hattersheim am Main/Friedrichshafen, October 2018.** Noise reduction is becoming more and more important in the development of modern vehicles. The automotive industry needs materials that effectively damp strong vibration and noise while being compatible with applications in challenging environments. Hybrar from specialty chemicals producer Kuraray is a high-performance triblock copolymer with unique damping properties that can be flexibly and easily combined with various plastics.

E-mobility and vehicle weight reduction are two central trends in automotive engineering. In vehicle design, noise reduction is also playing a key role. This is because the lower noise level of electric motors makes annoying rattling and squeaking noises more audible. In addition, the lightweight plastics parts used today can be a source of new unpleasant noises. The prevention of noise and vibration calls for materials that achieve high damping performance over a wide frequency range while being easy to process. Hybrar from specialty chemicals producer Kuraray with its European headquarters in Hattersheim near Frankfurt am Main is a highly elastic triblock copolymer with unique damping properties that can be flexibly processed in combination with various other materials such as polypropylene, polyamide, and polycarbonate.

#### **High Vinyl Content for Outstanding Damping and Incredible Stability**

Hybrar is a styrene block copolymer (SBC) with a poly-diene block featuring a high vinyl content. Thanks to its special structure, the material achieves its maximal damping effect close to room temperature - ideal for use in reducing noise in vehicles and in industry. Compared to conventional styrene block copolymers, Hybrar shows a significantly higher peak tan delta. In addition, it covers a wider frequency range - from very low frequencies, such as the resonance of the body, to very high frequencies, such as that of rubbing glass components. With these properties, it is ideal for absorbing various kinds of noise and vibration in vehicles.

Hybrar molds readily, is resistant to heat and the effects of the weather for hydrogenated form, and is highly compatible with applications in challenging environments, e.g. in vehicle engine compartments. Available in hydrogenated and non-hydrogenated forms, the hydrogenated grades show excellent miscibility with polypropylene (PP), achieving a blend with a considerably finer dispersion than conventional SBC - for greater transparency, flexibility, stability, and improved impact strength. Adding only 30 percent Hybrar to polypropylene improves tan  $\delta$  peak intensity at room temperature by some 80 percent. This means, for instance, that effective damping applications can be implemented at low cost compared to composite materials.

### **Versatile in Its Uses - from Protective Covers to Engine Components**

The plasticizer-free processing of Hybrar is extremely environment-friendly and permits a wide range of techniques such as film and profile extrusion as well as maximum flexibility in injection molding. In the automotive industry the material is already in use in combination with polypropylene, e.g. in shock absorbers, instrument panels, and door trim. Owing to its outstanding mixing properties, such as with high-density polyethylene (HDPE), ethylene propylene diene monomer rubber (EPDM), polycarbonate (PC), and polyamide, Hybrar is also ideal for applications such as covers, gasket rubber, radiator grilles, and engine compartment parts.

### **Various Other Applications - from Tool Grips to Sports Shoes**

In addition to the automotive sector, various other industries are already benefiting from the outstanding properties of Hybrar. It damps sports equipment, tool grips, loudspeaker cones and boxes, shoe soles, and floorcoverings. In addition, the triblock copolymer is utilized as a damping modifier in various thermoplastics and rubbers. Hybrar can be used as a key component of adhesive and sealant applications such as adhesive tapes and industrial and construction adhesives. Hybrar imparts impressive flexibility and elasticity to food and industrial packaging, and in the medical sector it replaces natural rubber, latex, and PVC in such items as elastic hygiene components and medical films and tubes.

Bildunterschriften/Quelle Fotos: Kuraray



[Foto 1] Enabling a quiet and smooth ride, triblock copolymer Hybrar from Kuraray damps loud noise, vibration, and impacts. It can be processed flexibly with various other materials, making it suitable for a wide range of uses in vehicles - from cockpit applications to the engine compartment.



[Foto 2] The damping performance of plastics is significantly improved when mixed with just a small share of triblock copolymer Hybrar from Kuraray. Hybrar thus endows sports equipment like golf clubs with optimal properties for top sporting achievement, e.g. for the perfect drive from the tee.



[Foto 3] Delivering high grip and immaculate audio quality, the triblock copolymer Hybrar from Kuraray features unparalleled properties such as good moldability and high resistance to heat and the effects of the weather. This makes Hybrar the No. One choice for numerous applications ranging from sports shoes to modern loudspeaker systems.

### **About Kuraray**

Established in 1991, Kuraray Europe GmbH is based in Hattersheim, near Frankfurt am Main, Germany. In 2016 the company generated annual sales of over EUR 600 million. It has 760 employees in Germany at its sites in Hattersheim, Frankfurt and Troisdorf. Kuraray is a global speciality chemicals company and one of the largest suppliers of industrial polymers and synthetic microfibres for many sectors of industry. Examples are KURARAY POVAL™, Mowital®, Trosifol® and CLEARFIL™. Kuraray Europe also has around 100 employees at six other European sites. They are also working on the development and application of innovative high-performance materials for a wide range of sectors, including the automotive, paper, glass and packaging industries, as well as for architects and dentists.

Kuraray Europe is a wholly owned subsidiary of the publicly listed Kuraray Co., Ltd., which is based in Tokyo, Japan, and has more than 9,000 employees worldwide and sales of over EUR 4 billion.

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