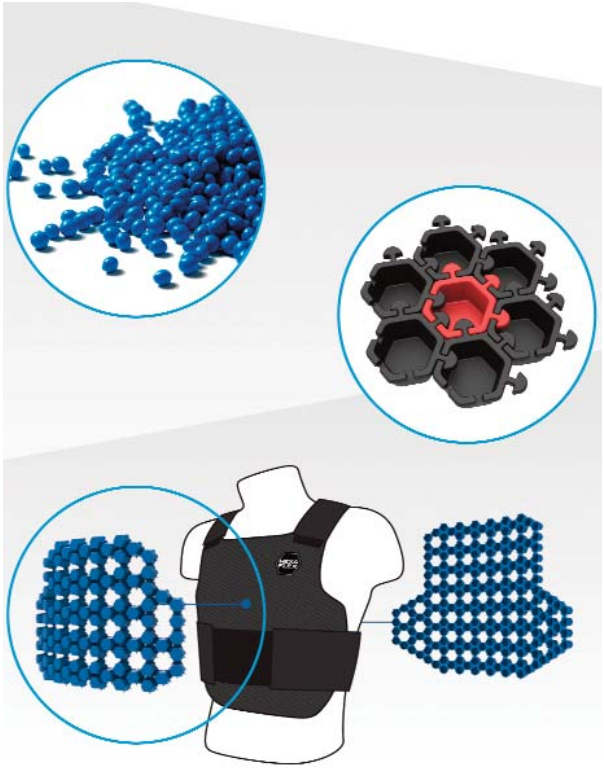
Breathable body protectors with lightweight padding use flexible thermoplastic elastomer compound from KRAIBURG TPE

The French company Hexaflex has developed a patented padding technology based on hexagonal-pyramidal shapes molded with TPE. The thermoplastic elastomer compound from KRAIBURG TPE provides the flexibility, light weight and full articulation characteristics of the modular system that lends itself to a myriad of shock and vibration absorbing applications, from sportswear and personal protection equipment to healthcare and other demanding industries.

In a first application, the creative technology is used for a dorsal protection product covered with high-strength aromatic polyamide stretch fabric for bikers and motorcyclists. The lightweight material combination acts like a second skin, and the Hexaflex padding with its interlocking shapes in THERMOLAST® K is fully articulated to follow body motion while ensuring maximum shock absorption.

"Innovative concepts like our Hexaflex system need innovative materials to take them from idea to reality," says Stephane Desnoyers, founder and CEO of Hexaflex company. "Although we knew it would have to be an elastomeric solution rather than foam, the success of this project was essentially driven by the expertise found in collaborating with KRAIBURG TPE. Besides helping us specify the most suitable thermoplastic elastomer, they supported us with comprehensive assistance from early on in the design phase through to series production."



The Hexaflex® shapes can be molded in various sizes, thicknesses and custom-colors. THERMOLAST K delivers the long-term flexibility required for reliable articulation of the assembled padding throughout the life time of the protectors. The material has also been shown to minimize rebound when the padding is flexed, which results in superior shock absorption performance.

Further specifications that must be met included good mechanical strength and durability over a wide range of temperatures. A priority for customers is the ease of recycling as well as the absence of substances of very high concern (SVHC) in the compound. In addition to these advantages, the padding is fully washable and waterproof, but simultaneously breathable, thanks to integrated ventilation features in the design.

Following its successful use in dorsal protectors, Hexaflex is planning to extend the technology to other sportswear in the near future, including knee and elbow pads for activities such as skateboarding, snowboarding, skiing and horseback riding. The company also sees broad application possibilities in personal protection equipment, from helmet inserts to breathable harnesses, as well as in anti-vibration floor padding and various healthcare products.

"The Hexaflex padding system using our THERMOLAST K material is an excellent example of product success through close professional collaboration," underscores Michael Pollmann, Sales & Marketing Director of KRAIBURG TPE. "We are very pleased about having been able to make a real contribution to this significant innovation, which has enormous market potential and highlights the ideal fit of our TPE product in such demanding sports & leisure applications."

The Hexaflex technology is patented in Europe, China and the U.S., and has been certified to EN 1621-2 Level 1 for back/spine protectors and EN 1621-1 Level 2 for all other body armor. In underfloor applications, Hexaflex can reduce structure-borne noise by 23 dB.◆