

HIPEX from KRAIBURG TPE: Oil-resistant with operating temperatures of up to 170 °C

### The elastic thermoplastic

**Leverkusen** – With the new thermoplastic elastomer HIPEX, LANXESS and KRAIBURG TPE – based in Waldkraiburg, Germany – are filling an important gap in the elastomer materials market. Developed by the two companies during four years of close cooperation, the high-performance polymer is suitable for injection molding and, compared with other thermoplastic elastomers, has unusually high heat and oil resistance. In addition, the innovative material also displays exceptional adhesion to engineering plastics. That makes HIPEX ideal for use in dual-component injection molding of high-end plastic components, including the cost-effective manufacture of flexible connections for the automotive sector. HIPEX is based on the aging- and heat-resistant rubber Levapren from LANXESS. The pellets are manufactured and sold by KRAIBURG TPE.

"Thermoplastic elastomers – or TPEs for short – offer a good compromise between the properties of an elastomer and the processability of a thermoplastic," says Kay Varnhorn, Product Developer at synthetic rubber pioneer LANXESS. "They lend components rubber-like properties, but can also be used in conventional plastics processing machines with the short cycle times typical of thermoplastics. As a result, they are becoming increasingly important in plastics engineering."

With HIPEX, LANXESS and KRAIBURG TPE are now taking the characteristics profile of thermoplastic vulcanizates (TPV) to a new level. "This thermoplastic vulcanizate based on the ethylene vinyl acetate (EVM) rubber Levapren from LANXESS is combined with a polar copolyester," explains Varnhorn. "The two polymer components are perfectly tailored to one another and undergo dynamic vulcanization at KRAIBURG TPE using a crosslinking system

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specially optimized for the job. This produces high-quality TPV pellets with optimized phase morphology and numerous properties that conventional TPEs simply can't match."

Among other things, this polymer combination results in outstanding temperature resistance with a maximum operating temperature of up to 170 °C. HIPEX can withstand such temperatures for a period of several days. The polar nature of the two polymer components is the reason why the new TPV also displays exceptional oil resistance. Other TPEs intended for similar purposes can only achieve these properties at hardnesses of over Shore A 90. In contrast, the range of hardnesses covered by HIPEX is very similar to that of rubber.

During the development process, particular attention was paid to the material's flowability. As a result, it is characterized by long flow paths and few injection points. And the benefits don't end there. "HIPEX adheres exceptionally well to polar engineered plastics, including many polyamides (PA), polyoxymethylene (POM) and polybutylene terephthalate (PBT)," reveals Varnhorn. "Initial customer tests show that flexible HIPEX seals can be injected directly onto surfaces made of these plastics. That means there is no need for the laborious task of inserting seals afterwards. Assembly, warehousing and quality control are also easier."

As a result, HIPEX is opening up completely new areas of application without processors having to change the way they work. "HIPEX can be processed on injection molding machines just like an 'elastic thermoplastic'," comments Varnhorn. "And there is still more potential waiting to be unlocked when it comes to combining Levapren with other materials. We are already working with KRAIBURG TPE to produce HIPEX grades that are also suitable for extrusion."

LANXESS is a leading specialty chemicals company with sales of EUR 5.06 billion in 2009 and currently around 14,300 employees in 23 countries. The company is represented at 42 production sites worldwide. The core business of LANXESS is the

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development, manufacturing and marketing of plastics, rubber, intermediates and specialty chemicals.

#### About KRAIBURG TPE

KRAIBURG TPE ([www.kraiburg-tpe.com](http://www.kraiburg-tpe.com)) manufactures thermoplastic elastomers based on HSBC (hydrogenated styrene block copolymers) and markets them all around the world. In addition to custom solutions, the company offers under the THERMOLAST® brand name a broad spectrum of standardized compounds to cover a wide range of applications. With its high-performance HIPEX® compound, KRAIBURG TPE is opening up the world of rubber for all the companies that process thermoplastics. The TPE specialist has production sites in Germany, the USA and Malaysia. KRAIBURG TPE also maintains sales offices in the UK, France, Italy, Spain, China and India.

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