News Release

Twisted Eiffel Tower

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- **New crash-optimized polyamides at FAKUMA 2011**

On the occasion of the FAKUMA trade fair in Friedrichshafen, Germany, which is taking place from October 18 - 22 this year, BASF is introducing three new representatives of its crash-optimized specialty polyamide 6 family at hall B4, booth 4306. The first two grades are designated Ultramid® B3ZG7 CR and Ultramid® B3ZG3 CR, reinforced with 35 or 15 percent glass fibers. The third grade is Ultramid® B3ZG10 CR, the first impact-modified polyamide 6 from BASF with 50 percent glass fibers. Initially targeted for body applications intended to provide pedestrian protection, these high-strength plastics are also suitable for other crash-relevant components on the vehicle, at the steering wheel, as structural inserts or on the seats: wherever fast absorption of high amounts of energy is required. Compared to their predecessor from the CR family, they offer further improved impact strength. Commercial quantities of all three grades are available immediately.

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For material development and testing purposes, BASF developed a bending and torsion test specimen specifically for the new crash-optimized grades. The test specimen, which can be used for tests at customers, is reminiscent of the Eiffel Tower in Paris and has 45° ribbing. While the classic CR material Ultramid® B3WG6 CR can

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already be distorted by almost 150° in static torsion tests without breaking, the new grades withstand distortion by the enormous angle of up to 240° without being damaged. There is hardly any other material class on the market that can undergo such a load and remain intact. The topology of the part on which these tests were performed was optimized in view of load-bearing by means of the universally applicable ULTRASIM™ simulation tool from BASF. Using this test specimen, the company can perform single-point and three-point bending tests in addition to the torsion test. At the same time, the characterization of a particular material can be validated on this test specimen for optimization by ULTRASIM.

More and more specialties – the Ultramid B CR family

The three new grades of the Ultramid® CR family are specialties in the line of compounded polyamide 6 formulations. They are ideal for rapidly absorbing a great deal of energy in demanding situations. What in the meantime has become an almost classic application is the so-called LBS (lower bumper stiffener), a large Ultramid part that Opel uses as a stiffening element below the front bumper for pedestrian protection, and the requirements for which become more demanding from model to model. "We assist customers who use these high-performance specialties to design their parts with our ULTRASIM™ service pack", explained Andreas Wüst, CAE expert for engineering plastics at BASF.

The three products were developed as a modular system with custom-tailored properties and, depending on requirements, offer the customer a somewhat softer or stiffer version. "This makes it possible to play with geometry, stiffness and toughness, allowing parts to have a stiffer or softer spring action", continues Anka Bernnat from technical marketing. All in all, the three plastics offer an improvement in elasticity of up to 200 % and up to 50 % increased stiffness. Structural parts that must satisfy crash requirements such as those already required for

pedestrian protection can be made 20 - 30 percent lighter when the full potential of these materials is exploited.

Additional new applications at the FAKUMA 2011

In addition to the new Ultramid® CR grades, BASF is exhibiting an exciting new application at the FAKUMA, the first thermoplastic production wheel rim, as well as introducing a new grade in the heat aging-resistant Ultramid Endure line, the chemical- and environmental stress cracking-resistant Ultramid Balance, new flame-retardant and hydrolysis-resistant engineering plastics, applications in the field of solar technology, materials for medical devices as well as polyurethanes and masterbatch preparations.

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Information on the Ultramid line (PA) from BASF is available at Ultraplaste.infopoint@basf.com or by calling the telephone number +49 (0) 621 60 78780.

A press photo can be found at www.basf.com/pressphoto-database, under the heading "Plastics" or by entering the search term "Ultramid". Text and photo will also be available shortly in BASF's plastics press archive: www.basf.de/plastics/pressreleases