

150 years



News Release

BASF at Fakuma 2015: Plastics without Limits

- **Automotive lightweight construction: a new level in metal replacement**
- **Flame-retardant polybutylene terephthalate (PBT) for electric power modules**
- **Easy-flow PBT for food packaging**
- **Stand chairs: Belleville from Vitra made of Ultramid® SI (Surface Improved)**

BASF is presenting numerous new solutions for the packaging and furniture industry, automotive and electrical engineering at this year's Fakuma, the international trade fair for plastics processing, in Friedrichshafen. From October 13-17, 2015, stand 4306 in hall B4 will be totally dedicated to engineering plastics, polyurethanes and master batch preparations.

The new lightness in the car: for the roof, the cooler and the shock absorber

BASF will be presenting several world-firsts for automotive lightweight construction at its stand: Novelties include the first top mount with a bearing made of the BASF elastomer Cellasto® and a housing made of the polyamide specialty Ultramid® A3WG10 CR as well as the first rear-axle transmission cross beam made of plastic in the Mercedes-Benz S Class. Thanks to the BASF materials used, both components are approximately 25% lighter than previous solutions made of metal. They also improve the mechanics and acoustic properties of the components.

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October 13-17, 2015,
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For the top mount, the interplay between the materials is crucial: Cellasto® shows very good static and dynamic behavior, has a long life usage and takes up only a small amount of installation space. Components made of Cellasto® have been used in cars for more than 50 years. The PA66 grade Ultramid® A3WG10 CR is reinforced with 50 percent glass fibers and is therefore exceptionally rigid and solid, even at high temperatures. The engineering plastic is particularly suitable for dynamic loads and thus generally a good alternative to metal.

BASF is also setting new standards in terms of weight savings with polyurethanes: With the polyurethane foam system Elastoflex® E, it was possible for the first time to mass-produce an exterior car part featuring a honeycomb sandwich structure with a class-A film – for the new smart fortwo. A single operation thus produces a roof module which is around 30 percent lighter than the standard roof on the previous model. Also produced with one material in the one-shot process is a lightweight engine cover made from Elastoflex® I that is used in serial production by the Swedish automobile manufacturer Volvo. The flexible polyurethane integral foam for the visible part is characterized by a low component density of 140 kg/m³, is dimensionally stable, media-resistant as well as resistant to thermal aging of up to 150 °C.

BASF is also expanding its portfolio for the dynamic market of electric and hybrid vehicles. Tailor-made Ultramid® and Ultradur® materials are now globally available to equip high-voltage plug-in connectors in the vehicle interior and exterior with precisely fitting features. The special polyamide and polybutylene terephthalate types fulfill the legal requirements for flame retardance, color stability, mechanics and electrical isolation.

Flame-retardant Ultradur® in power semiconductor modules from SEMIKRON

Since the beginning of 2015, the polybutylene terephthalate (PBT) Ultradur® B4450 G5 from BASF has been used in the mass production of the “MiniSKiiP Dual” power semiconductor modules from the

company SEMIKRON. The flame retardant system used in the PBT contains no halogen and complies with the Restriction of Hazardous Substances Directive (RoHS). Application examples of power semiconductor modules (or DC/AC converters) are in industrial drive technology, or in the powertrain of electric vehicles. The material is classified as V-0 under UL 94 from a wall thickness of 1.5 millimeters and in combination with an excellent temperature performance (RTI = 140 °C) it is therefore particularly well suited to applications in electric power modules which are subject to a high amount of heat generation. With a CTI value of 600, the material offers a very sound choice thanks to its exceptionally good electrical insulation capacity and therefore offers great freedom of design even for small and detailed components such as the MiniSKiiP Dual. Ultradur® B4450 G5 is reinforced with 25 percent glass fibers, which gives the components additional stability.

Ultradur® B1520 FC for thin-walled, injection molded food packaging

At the last Fakuma, prototypes of coffee capsules made of this BASF material were on display; today the easy flowing material is in use in two series production applications: in sauce tubs from the Gautschi company as well as coffee capsules from Equity Holding.

Ultradur® B1520 FC (FC: Food Contact) provides an effective water vapour, oxygen and, above all, aroma barrier without requiring extra coatings. Products in packages made of this PBT material stay fresh for considerably longer, as Gautschi confirms. Thanks to its Food Contact certification, the product is suitable not only for food packaging, but also for cosmetics packaging.

The two series production applications can be seen and experienced at the BASF stand. The coffee capsules at the coffee bar as well as different sauce samples show Ultradur® in use.

Stand chairs: Belleville from Vitra made of Ultramid® SI

Visitors to the BASF stand will sit on the Belleville Armchair from Vitra. This design highlight – created by the Bouroullec brothers – consists of two separate components: the frame structure and the seat shell. Both are made of the polyamide Ultramid® B3EG6 SI from BASF and were developed with the assistance of the Ultrasim® simulation instrument. The technically refined frame is slight and elegant, yet fulfills the highest stability requirements. The chairs are manufactured using the GIT (gas injection technology) process, which enables more economical and lighter design variants, but also presents more rigorous requirements in terms of the component geometry. For the first time, BASF succeeded in taking account of the real shape of the gas bubble in the structural simulation using Ultrasim®. This made it possible to exploit the full potential of the design, process and material.

On the internet:

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About BASF's Performance Materials Division

BASF's Performance Materials division encompasses the entire materials know-how of BASF regarding innovative, customized plastics under one roof. Globally active in four major industry sectors - transportation, construction, industrial applications and consumer goods – the division has a strong portfolio of products and services combined with a deep understanding of application-oriented system solutions. Key drivers of profitability and growth are our close collaboration with customers and a clear focus on solutions. Strong capabilities in R&D provide the basis to develop innovative products and applications. In 2014, the Performance Materials division achieved global sales of € 6.5 bn.

More information online: www.performance-materials.basf.com

About BASF

At BASF, we create chemistry – and have been doing so for 150 years. Our portfolio ranges from chemicals, plastics, performance products and crop protection products

to oil and gas. As the world's leading chemical company, we combine economic success with environmental protection and social responsibility. Through science and innovation, we enable our customers in nearly every industry to meet the current and future needs of society. Our products and solutions contribute to conserving resources, ensuring nutrition and improving quality of life. We have summed up this contribution in our corporate purpose: We create chemistry for a sustainable future. BASF had sales of over €74 billion in 2014 and around 113,000 employees as of the end of the year. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (AN). Further information on BASF is available on the Internet at www.basf.com.