News Release

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BASF showcases variety of new products at Fakuma

- **Engineering plastics assist autonomous driving and increase driving comfort**
- **Ultradur® for robust and resistant automobile components**
- **Versatile applications for Infinergy® in the sports sector**
- **Color masterbatches from BASF Color Solutions make recycled material shine like new**
- **Versatile portfolio and outstanding performance: polyarylsulfones for household, automotive and water contact applications**
- **BASF turns ideas into ideal solutions**

When the doors open on the 26th Fakuma in Friedrichshafen, Germany, from October 16 until 20, BASF will be showcasing its latest developments from its extensive portfolio. The international trade fair for plastics processing will see BASF experts discussing the current market trends in the automotive, lifestyle and industrial development sectors. Many new products and innovations will be presented at stand 4306 in hall B4.

Ultramid® Deep Gloss now in color

The development of the specialty polyamide Ultramid Deep Gloss continues to make progress. After having been successfully launched on the market and winning the German Innovation Award, the product now turns from black to colorful. “In order to meet the individual needs of our customers, we are now also able to offer

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Ultramid Deep Gloss in colors. Apart from contrasting colors, we are also offering colors which follow current color trends. This opens up versatile possibilities for car interior design," said Xaver Hopfenspirger, project manager for Ultramid Deep Gloss at BASF. The excellent property profile remains unchanged: resistance to scratching, high chemical and good UV resistance. In addition, the high gloss level reproduces structures with faithful detail, thus allowing a highly contrasting mix of light and shadow – without additional coating.

High-performance materials for autonomous driving

Chemistry is making a vital contribution to the comfort and safety of autonomous driving. Sensors in the car are important in assisting the driver and are an indispensable part of the development of autonomous driving. Whether these are radar, lidar, IR or ultrasonic sensors, they function not only as lane assistants but also as collision warning systems and distance control, and assist with the emergency brake function – a basic prerequisite for controlling cars completely automatically in the future. With its broad range of products, such as the hydrolysis resistant polybutylene terephthalate (PBT) Ultradur HR and the polyamide (PA) Ultramid EQ for sensitive electronic applications, BASF is already contributing to a large number of sensor technologies and playing a valuable role in making autonomous driving a reality.

Engineering plastics and polyurethanes increase driving comfort

Automotive manufacturers are always keen to reduce the effects of non-suspended parts on the chassis and to protect the car occupants from disturbing bumps. Weight reduction, driving comfort, NVH solutions (NVH: Noise, Vibration, Harshness) – there is a wide range of requirements on chassis components. In order to allow automotive manufacturers to achieve the optimum combination of lightweight construction, pleasant acoustics and vibration damping, BASF provides NVH solutions made from the microcellular polyurethane elastomer Cellasto® as well as the highly glass-fiber reinforced polyamide Ultramid and the thermoplastic polyurethane Elastollan®. This results in efficient material combinations for top mounts, spring seats and other chassis components.

E-mobility with Elastollan

The excellent mechanical properties of Elastollan and its high resistance to fats and oils make the thermoplastic polyurethane (TPU) from BASF the ideal partner in the field of e-mobility. Due to their flexibility and UV resistance, several polyether polyol-based Elastollan grades of the 1100 and 1100 FHF/FR series are particularly suitable for use in the sheaths of charging cables (ISO 6722 certification – class C and class D), whether for mobile charging from the luggage compartment or at a charging station. In addition, these non-halogen-based, flame-retardant Elastollan grades offer customers excellent processing characteristics and consistently high quality.

Optimized connectors for the automotive industry

BASF is expanding its portfolio of engineering plastics and continuing to answer the trend of miniaturization of electronic car components: the new Ultradur grade B4340ZG3, with its improved mechanical properties and increased impact strength, offers increased stiffness and resistance to external loads, while retaining the same excellent flowability. Applications such as cable harnesses require robust and unbreakable plug-in connectors to avoid the labor- and cost-intensive replacement of defective parts. Ultradur B4340ZG3 also has special electrical properties. The CTI (Comparative Tracking Index acc. to IEC 60112) is 600 volts and therefore permits minimum gaps between the conductor tracks in plug-in connectors. Ultradur B4340ZG3 is available in black and uncolored from now on in commercial quantities; samples can be ordered.

Crystal clear decision for Elastollan

The aliphatic Elastollan series L 700 and L 1200 convinces with its excellent optical properties and extraordinary mechanical toughness. When it comes to preserving delicate surfaces as part of stone chip protection in cars or erosion protection in wind turbines, the use of Elastollan films is recommended. These materials also offer a combination of crystal clear transparency, long-term UV resistance and strong mechanical properties in other demanding applications such as TPU laminate films in high-security glass for vehicles and buildings.

Multi-talented Infinergy scores well in the sports sector

In 2013, Infinergy (E-TPU) was launched in the adidas Energy Boost shoe. Today, Infinergy is also popular in other sports applications. At the BASF stand, the material will be exhibited not only in the adidas shoes but in applications such as bicycle saddles, bicycle tires, treadmills and other sports equipment. The closed-cell particle foam's properties makes it suitable for a variety of sports applications. It provides both cushioning and spring, and is therefore ideal for sports that put intense stress on joints. The high rebound effect is achieved by the special air cell structure made from welded foam beads. Infinergy is also lightweight and elastic. The expanded thermoplastic polyurethane is thus opening up entirely new areas of application both inside and outside the sports sector.

Take a seat! Seating at stand provided by lightweight Aula from Wilkhahn

Aula is the name of the latest chair model from Wilkhahn. The fully plastic frame and the armrests are made from Ultramid SI, the surface-optimized plastic from BASF. With this chair, designers and engineers have taken plastic to new esthetic and functional dimensions. BASF's simulation capabilities (Ultrasim®) also played a key part in ensuring that every part of the chair frame could be produced from a high-performance plastic (Ultramid SI), therefore rendering a steel core unnecessary. This resulted in a new weight class. At only 6 kilograms, or 6.7 in the design with armrests, the Aula is a lightweight. The design, shape and surfaces invite you to take a seat – especially during the Fakuma.

Color masterbatches from BASF Color Solutions

With its masterbatch for regranulate overdyeing, BASF Color Solutions Germany GmbH is also presenting products to strengthen the concept of sustainability this year. To this end, the two variants "coloration of natural plastics" and "coloration of recycled material" are being presented as equivalent alternatives. The variants are presented embedded in artificial turf that has been dyed using the product lines Lufilen® und Sicolen® and manufactured by Beens Grass-Yarns B.V. Using artificial turf instead of real turf can make a valuable contribution to sustainability in arid regions, since this saves the limited resource of water. The possibility of dyeing recycled material to produce a high-quality finish reinforces the recycling of materials in a circular economy. It is even possible to dye materials containing up to 100% recyclate, since the color-intensive Sicolen masterbatches manage to

overcome the usual challenges of recyclate coloration using special additives. Possible examples are beverage crates and waste bins, that can therefore bear the “Blue Angel” eco-label.

Combining broad portfolio with extensive know-how to deliver extra value

As the leading supplier of additives for the plastic processing industry, BASF offers its customers a wide variety of solutions including antioxidants and light stabilizers, as well as flame retardants and polymer modifiers that enhance the functionality and durability of plastic. Its broad competence in regulatory affairs to provide industry-leading support on important aspects such emission level enables its customers to meet the most stringent requirements. One example is Irgastab® PUR 70, an anti-scorch additive for polyurethane foams, that prevents thermal-oxidative degradation of polyol and PUR flexible foam during foam manufacture and leads to extremely low emissions. These foams can be applied to different vehicle interior applications including textile trim cover and molded foam seats and help OEMs and tiers meet the continuously tighter requirements on interior vehicle emissions and odor.

Ultramid Flex for soft packaging

Ultramid Flex F38 is the new bio-based copolyamide from BASF. Due to its outstanding properties even at low temperatures and low humidity it is ideally suited for soft packaging, as well as a wide array of technical films. Beyond its technical performance, Ultramid Flex F38 provides a distinct contribution to sustainability, as parts of the raw materials are sourced from locally grown rapeseed oil. For the packaging industry, the new Ultramid Flex F unlocks entirely new opportunities for launching bio-based products onto the market.

Ultrason® portfolio with its unique performance

The versatility and outstanding performance of Ultrason, BASF’s polyarylsulfone, opens up broad applications possibilities for companies in industries as diverse as household, automotive and construction. BASF provides an overview of the different Ultrason grades for household applications such as deep fryers, in which food safety, temperature resistance and design are successfully combined. For the construction industry, materials that are permitted to come into contact with drinking water and can even be used to manufacture components that are built into walls are becoming increasingly important. Here, BASF exhibits several fittings to illustrate

how the polyphenylsulfone Ultrason P combines durability with high stress cracking and heat resistance. Ultrason is also used for temperature-resistant components in the automotive industry. Thanks to its excellent heat resistance up to 220°C, for example, it was possible to design the new headlight reflectors in the Hyundai ix35 to be particularly compact. For dimensionally stable applications that call for high stiffness and good flowability, BASF presents the polyethersulfone Ultrason Dimension E 0510 G9.

For even greater metal replacement: expansion of the PPA portfolio by PA 6T/6I

For the first time since Ultramid Advanced N, BASF is presenting another polyphthalamide (PPA) at the Fakuma: Ultramid Advanced T1000 – a new group of compounds based on PA 6T/6I. Within the Ultramid family, Ultramid Advanced T1000 is the product group with the highest strength and stiffness, and has constant mechanical properties at temperatures of up to 120°C. Thanks to its semi-aromatic chemical structure, it offers high resistance to moisture and to aggressive media, outperforming conventional polyamides and many other PPAs.

Would you like some innovation with your coffee? At the bar, BASF will once again be serving coffee specialties packaged in capsules made from Ultradur B 1520FC R01. Ultradur B1520 FC R01 (FC: Food Contact) offers a high steam, acid and especially aroma barrier without the need for additional coatings. Products remain fresh for much longer in packaging made from this PBT material. Due to the food contact certification, the product is also suitable for cosmetics packaging as well as food packaging.

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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 2017, the Performance Materials division achieved global sales of €7.7 billion. More information online: www.performance-materials.basf.com

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The more than 115,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is organized into five segments: Chemicals, Performance Products, Functional Materials & Solutions, Agricultural Solutions and Oil & Gas. BASF generated sales of €64.5 billion in 2017. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (BAS). Further information at www.basf.com.