We create chemistry

News Release

P257/19e
July 12, 2019

Ideal solutions for future mobility

- **Tomorrow's mobility has already begun**
- **Engineering plastics are irreplaceable in electromobility**
- **BASF supports autonomous driving with a wide range of high-performance plastics**

Megatrends in the automotive industry are facing new challenges for the materials used, yet at the same time opening up new opportunities. Electromobility and autonomous driving are set to revolutionize cars and put established vehicle concepts to the test. Automobile trends, such as reduced emissions, electrification and automated driving, will only become a reality with constant innovation. Modern vehicles already rely heavily on material solutions from the chemicals industry; however, in future, chemistry will play an even greater role, making a significant contribution to solving tomorrow's mobility challenges.

Safety first – BASF's flame-retardant plastics

The speed at which we are able to optimize the performance, weight, safety and above all the efficiency of electric drive trains will be a crucial factor in the success of electromobility. Flame-retardant plastics are indispensable in enabling savings to be made in terms of the weight and installation space required for high-voltage components. Special polyamide (PA) and polybutylene terephthalate (PBT) grades from BASF can be used as halogen-free, flame-retardant materials to give high-voltage components both inside and outside of the vehicle the exact properties

Media Relations
Max Kron
Phone: +49 621 60-42223
max.kron@basf.com
www.plastics.basf.com

BASF SE
67056 Ludwigshafen
http://www.basf.com
presse.kontakt@basf.com

required. These engineering plastics meet the highest requirements in flame retardance, color stability, mechanics, and electric insulation. At the same time, the intrinsic insulating properties add to the safety in the vehicle. BASF has a portfolio of various polyamide 6 and 66 grades available to ensure dependable microelectronics in control equipment and sensors that help prevent electric corrosion damage to circuits. The various Ultramid® EQ grades (EQ: electronic quality) that BASF has been marketing for years are extremely pure and contain almost no electrically active or corrosive substances, such as halides. On top, this material also has excellent heat aging resistance properties.

Today’s electronic drive systems are still primarily part of the metals industry. Until now, manufacturers of electronic motors and power electronic components have been using housing made of steel or die-cast aluminum. As many of the components are now actively cooled, meaning that heat no longer needs to be dissipated via the housing, plastic solutions are now a possibility for a lightweight construction, for example flame-retardant Ultramid® grades A3U42G6 and B3U50G6. Housings that contain high-voltage electric components must be electrically shielded to prevent compromising the surrounding area. Metal coatings on the plastic housing parts are one of the possible solutions that BASF is pursuing. Coating in this way can provide good shielding of the magnetic field. In addition, engineering plastics offer the advantage of integrating additional functions into the component. In prototype pre-series projects with customers, it has already been able to show that plastic housings manufactured using this process are lighter and more economical than comparable die-cast aluminum housings.

Autonomous driving – thanks to sensors

In addition to electromobility, highly automated driving will also revolutionize tomorrow's vehicles. In driverless vehicles, the interior will become an extended living room. The number of sensors will increase significantly, relieving drivers of many driving tasks. BASF has already made a significant contribution to a number of sensitive electronic sensor technologies with its unique portfolio of hydrolytically resistant PBT grades.

However, the increasing level of automation will also see a range of new sensors, such as radar, lidar, IR, and ultrasonic sensors find their way into our cars. These function not only as lane assistants but also as collision warning systems and distance controllers, and also assist with the emergency brake function – a basic

prerequisite for controlling cars completely automatically in the future. Implementing these solutions into large-scale production can only be guaranteed using plastics. BASF offers radar-optimized plastics used for radar transmission and absorption that increase the accuracy of the radar sensors, thereby improving the functionality of the automated vehicle with greater cost efficiency.

Receive the latest press releases from BASF via WhatsApp on your smartphone or tablet. Register for our news service at basf.com/whatsapp-news.

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 2018, the Performance Materials division achieved global sales of €7.65 bn. More information online: www.plastics.basf.com.

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The approximately 122,000 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 six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of around €63 billion in 2018. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the U.S. Further information at www.basf.com.