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BASF stand: hall 7.2, stand F51

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SGL Group and BASF successfully conclude joint material research of innovative polyamide-carbon-fiber composite system

- Carbon-fiber material system based on reactive polyamide developed
- Transfer into specific applications for the automotive industry as next step

Wiesbaden/Ludwigshafen, March 9, 2015. SGL Group – The Carbon Company and the chemical company BASF have concluded the joint research of a new composite material system as an important development step of their collaboration. The system aims at enhancing the cost-effectiveness of manufacturing thermoplastic carbon-fiber composites, for example in injection procedures (T-RTM: thermoplastic resin transfer molding) and reaction injection molding. The composite is based on a reactive polyamide system and compatible carbon fibers. A carbon-fiber surface—or sizing—specially designed for the matrix system as well as tailored thermoplastic reactive systems mean that lightweight structural components for, say, the automotive industry can now be manufactured quickly and easily.

This collaboration between SGL Group and BASF was launched back in October 2012. On the basis of the now-complete material research, the transfer of the special systems made from carbon fibers and matrices into specific applications of customers in the automotive industry is now under way.

Tailored solutions

As part of this collaborative project, SGL Group developed a new sizing formulation for the carbon fibers. In addition, special processes for manufacturing carbon-fiber-based textiles such as fabrics and braidings were also developed. To produce Non-Crimp-Fabrics (NCF), special threads are used that enable processing in the reactive polyamide system.

BASF's role in this project was to process SGL Group's newly developed carbon fibers using the T-RTM technique and to characterize them comprehensively both chemically and mechanically. The BASF research team is continuing to work intensively on the development of caprolactam-based thermoplastic reactive systems.

Tilo Hauke, head of research at SGL Group: "The interaction of all components is of central importance for innovative composites based on reactive polyamide. With its extensive material knowhow, SGL Group brought a range of tailored solutions for sizings and fiber processing to this collaborative project."

Josef R. Wünsch, head of Structural Materials and Systems Research at BASF: "In close collaboration with plant manufacturers as well as tiers and automotive OEMs, we are working on the development of robust polyamid 6 carbon-fiber composite systems. The mechanical characteristic values arising from the interaction of the fiber and matrix are crucial input parameters for our simulation tool Ultrasim®. We are currently working intensively on enhancing our simulation expertise for reactive systems so that we can provide our customers with expert support for part design and optimization."

Unique material properties

Thermoplastics-based carbon-fiber composites combine the properties of carbon fibers such as high rigidity and low weight with the familiar processing advantages of thermoplastics, allowing them to be formed, recycled and welded. This helps make carbon fiber technology an even more viable proposition for large-scale production in a number of different applications.

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.

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About SGL Group – The Carbon Company

SGL Group is one of the world's leading manufacturers of carbon-based products and materials. It has a comprehensive portfolio ranging from carbon and graphite products to carbon fibers and composites. SGL Group's core competencies are its expertise in high-temperature technology as well as its applications and engineering know-how gained over many years. These competencies enable the Company to make full use of its broad material base. SGL Group's carbon-based materials combine several unique properties such as very good electrical and thermal conductivity, heat and corrosion resistance as well as high mechanical strength combined with low weight. Due to industrialization in the growth regions of Asia and Latin America and increased substitution of traditional with innovative materials, there is a growing demand for SGL Group's high-performance materials and products. Products from SGL Group are used predominantly in the steel, aluminum, automotive and chemical industries as well as in the semiconductor, solar and LED sectors and in lithium-ion batteries. Carbon-based materials and products are also being used increasingly in the wind power, aerospace and defense industries.

With 42 production sites in Europe, North America and Asia as well as a service network covering more than 100 countries, SGL Group is a company with a global presence. In 2013, the Company's workforce of around 6,300 employees generated sales of €1,477 million. The Company's head office is located in Wiesbaden.

Further information on SGL Group can be found in SGL Group's newsroom at www.sglgroup.com/press or at www.sglgroup.com.

Important note:

This press release may contain forward-looking statements based on the information currently available to us and on our current projections and assumptions. By nature, forward-looking statements involve known and unknown risks and uncertainties, as a consequence of which actual developments and results can deviate significantly from these forward-looking statements. Forward-looking statements are not to be understood as guarantees. Rather, future developments and results depend on a number of factors; they entail various risks and unanticipated circumstances and are based on assumptions which may prove to be inaccurate. These risks and uncertainties include, for example, unforeseeable changes in political, economic, legal, and business conditions, particularly relating to our main customer industries, such as electric steel production, to the competitive environment, to interest rate and exchange rate fluctuations, to technological developments, and to other risks and unanticipated circumstances. Other risks that in our opinion may arise include price developments, unexpected developments connected with acquisitions and subsidiaries, and unforeseen risks associated with ongoing cost savings programs. SGL Group does not intend or assume any responsibility to revise or otherwise update these forward-looking statements.

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