Press release

CAMISMA – New composites for lighter cars

April 29, 2011

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- project is based upon materials, which compared to existing systems are 40% lighter
- cost competitive, carbon fibre reinforced polymers with metallic inserts

In light of climate change and finite fossil energy supply, the development of resource efficient vehicles with reduced emissions is a central challenge. In this respect, the vehicle weight plays a key role in fuel consumption. The need for lighter automotive structures is amplified by the development of battery operated electric cars. In both cases, lighter vehicles will lead to the possibility of lowering consumption – with a combustion engine, a tank filling covers more kilometres, whereas with an electric car the range of the battery charge is extended.

Since years Evonik has successful developed materials and systems for lightweight solutions for the automotive sector. Together with three other industrial partners (Johnson Controls GmbH, Jacob plastics GmbH and Toho Tenax Europe GmbH) and the University of Aachen (Institute for textile technology [ITA] and Automotive Institute [IKA]). Creavis the strategic research and development centre of Evonik is developing a novel lightweight construction concept. In such that, both steel and lightweight metals are to partially replaced. The project is called CAMIMSA (translated from the German: carbon fibre/amide/metal-based interior structural elements in a multi-material system approach). It is funding by the German Ministry of Education and Research (BMBF) and belongs to the WING call (material innovation for industry and society). The project began early April 2011 and is set for the coming three years.

It addresses multi-material systems, which will lead to future lightweight designs of resource saving mobility. Thus far, lower weight was only realized by adjusting existing systems, such as thinner steel sheets, and in the meantime, these solutions are approaching their natural limits. Therefore, new materials and construction designs need to be developed. In this context, fibre reinforced polymers or composites (FRP), especially those based on carbon fibres, have received wide attention. Currently employed in the aeronautical sector, this group of

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materials with their high specific mechanical strength and formation freedom offer the possibility of new lightweight construction concepts. However, for mass production in the automotive sector, they are still too expensive. This essentially lies twofold for FRP: high raw material costs and a very time intensive production. They are yet not competitive against standard sheet metal forming processes. It is this point in which the CAMISMA project positioned "Here we plan to increase the production cycle rates in order to facilitate the economical mass production", explained Dr. Matthias Berghahn, Evonik's Senior Project Manager of the Line of Development Energy Efficiency and Customer Solutions at the Science-to-Business Center Eco², who is responsible for the CAMISMA project. Furthermore, the connection of FRP elements to metal-based frames has yet not been satisfactorily solved. The project will cover a complete solutions approach to allow the entrance of economically priced carbon fibre composites for multi-material systems. To determine the feasibility of this concept, an exemplary Seat Panel Structure will serve as a guide for the development, production and testing. The overall goal is to reduce the weight of a standard metallic system by 40%.

About Creavis Technologies & Innovation

As the strategic research and development unit of the Chemicals Business Area at Evonik Industries, Creavis has the mission of building new and sustainable businesses for Evonik and to develop trendsetting technological platforms. Creavis is focused on new technologies, applications, and systems for the markets of the future, which present above average growth rate perspectives. Depending on the risk of the research topic, they are dealt with either in so-called Project Houses or Science-to-Business Centers. Visit us under http://www.evonik.com/creavis

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Evonik is active in over 100 countries around the world. In fiscal 2010 more than 34,000 employees generated sales of around €13.3 billion and an operating profit (EBITDA) of about €2.4 billion.

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