

## Evonik provides tailor-made lightweight design solutions for China automotive industry

- Providing lightweight design solutions for various applications on Shanghai Motor's first electric car Roewe E50
- Achieving substantial weight reduction
- Making contribution to energy efficiency for new generation vehicles

The all-new Roewe E50 electric car was in the spotlight at Shanghai International Industry Fair 2011 on Shanghai Motor's booth, underscoring the benefits of lightweight design solutions from Evonik Industries. The new-energy vehicle is powered by a lithium ion battery. Roewe E50 uses several lightweight materials from Evonik for various applications to support reduced energy consumption and lower emissions, such as PLEXIGLAS® material for the side screens, rear window and rear lamp, as well as ROHACELL® rigid core material and an epoxy resin formulation based on VESTAMIN® hardener technology for the engine hood.

"We are proud to have played a part in providing Shanghai Motor's first electric car with our lightweight and environmentally progressive plastic solutions." said Xu Hang, Project Head of Lightweight Design in China.

The use of Evonik's PLEXIGLAS® – a coated PMMA to replace traditional mineral glass – in Roewe E50 demo car reduces weight of the fixed side screens up to 40–50%. It also helps to reduce energy consumption and CO<sub>2</sub> emission. The advantages of PLEXIGLAS® glazing include UV stability and good acoustic properties, which means added value for the vehicle as a whole. In addition, the car designer can achieve more design freedom with this material and gain sophisticated curve structure which is not feasible by using traditional mineral glass. The special grade of PLEXIGLAS® material is also applied at the rear lamps of Roewe E50 to achieve a special light diffusing effect.

The engine hood of Roewe E50 uses the structural foam ROHACELL® developed by Evonik. This material is used as core in sandwich structures. Compared to a steel engine hood, the sandwich version saves up to 70% of weight. Due to the outstanding heat resistance and remarkable mechanical strength of ROHACELL® material, it can shorten curing cycles at elevated temperatures above 130°C and offer a cost efficient production.

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Because of its high mechanical strength at low densities, even small thicknesses of ROHACELL® enable the construction of light weight body parts with extreme stiffness.

With the aim to support high output production of composite body parts, a new epoxy resin formulation based on VESTAMIN® hardener technology was used in the resin infusion manufacturing process. Short cycle times can be realized to be able to fit for mass production.

Evonik Industries is a worldwide manufacturer of PMMA products sold under the PLEXIGLAS® trademark on the European, Asian, African and Australian continents and under the trademark ACRYLITE® in the Americas.

### **Company information**

Evonik, the creative industrial group from Germany, is one of the world leaders in specialty chemicals. Its activities focus on the key megatrends health, nutrition, resource efficiency and globalization. In 2010 about 80 percent of the Group's chemicals sales came from activities where it ranks among the market leaders. Evonik benefits specifically from its innovative prowess and integrated technology platforms. 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.

Evonik Industries has been producing specialty chemical products in the Greater China region (Mainland China, Hong Kong, Taiwan, and Macao) since the late 1970's; with wide-ranging trading relations already in place prior to this in the region. The Group now has a total of 18 companies and 15 production sites in the Greater China region. Evonik regards Greater China as one of the driving forces of the global economy and we consequently endeavour to grow our business in the region.

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