

Top of the Class

Evonik's Lightweight Lotus at the Top of its Class in the 24 Hour Race at Silverstone: Sandwich Composite Materials Significantly Reduce Weight

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The Evonik Industries team and RED-Motorsport celebrated a successful weekend for their Lotus Exige in the 24-hour race in Silverstone, UK. Top of its class (up to 3.5 liters), and with a lead of 44 laps, the Exige won out over significantly more powerful racing cars, and was ranked fifth overall. The world-famous racing track, located between Northampton and Oxford, was the scene of the latest episode in the success story of Evonik's lightweight racer. This success is due in part to systematic use of lightweight materials offered exclusively by the Essen, Germany-based industrial group. The racing Exige weighs in at just 820 kilos, as opposed to the 935 kilos of the standard version.

A good example of such a material is ROHACELL®, a core for sandwich composites. Higher rigidity, less weight, and consequently improved acceleration are the advantages that Evonik's ROHACELL® polymethacrylimide structural foam offers the British racing car. Both the rear airfoil and the front and rear hatches of the Lotus are made of this structural foam combined with covering layers of fiber-reinforced epoxy resin. The ROHACELL® core and carbon-fiber-reinforced epoxy resin top layers are compacted under pressure and at high temperatures to form a sandwich composite. The result is an extremely tough component. Using ROHACELL® as the sandwich core eliminates the need for costly and "heavy" layers of carbon fibers, yet the highly rigid, extremely light rear wing, for example, can withstand enormous wind pressures, even at high speeds. The ROHACELL® components alone result in weight savings of about 20 kilograms, allowing greater acceleration; handling is significantly improved, so that even curves can be negotiated at higher speeds. A further decisive advantage, particularly for long-distance racing, is that the new clam shells consist in each case of a single piece, as opposed to the several individual components of the mass-produced version. At pit stops, these light and strong parts are easily, rapidly, and safely removed and remounted, despite their large size.

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Besides its use in racing and supersportscars, ROHACELL® is also valued for its properties in aerospace applications, for example, in the rotor blades of helicopters or for fuselage parts (pressure domes, fuselage, and engine cowling) and in medical technology, for manufacturing X-ray or CT tables.

In fiscal 2007 Evonik Industries generated automotive sales of €1.943 billion, corresponding to 14 percent of overall sales totaling €14.430 billion. The Group supplies the automotive industry with a variety of polymers, additives, and material components for developing and mass-producing plastic parts for drive trains and car bodies and for exterior and interior applications. Further applications include components for lithium-ion batteries, tires, coatings, adhesives, and lubricants.

Company information

Evonik Industries is the creative industrial group from Germany which operates in three business areas: Chemicals, Energy and Real Estate. Evonik is a global leader in specialty chemicals, an expert in power generation from hard coal and renewable energies, and one of the largest private residential real estate companies in Germany. Our strengths are creativity, specialization, continuous self-renewal, and reliability. Evonik is active in over 100 countries around the world. In its fiscal year 2007 about 43,000 employees generated sales of about €14.4 billion and an operating profit (EBITDA) of more than €2.2 billion.

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