Henkel Excellence is our Passion

Press Release

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Henkel at Composites Europe 2014

Composite Know-How

Composites Europe is one of the leading European trade fairs for composite materials. This year it will be taking place in Düsseldorf / Germany from October 7 to October 9. As leading solution provider for adhesives, sealants and functional coatings worldwide, Henkel will be appearing at Composites Europe with a range of innovative composite technologies for the automotive and aerospace industries. Experts will be on hand at Stand D44 in Hall 8a, providing information on a wide range of products and system solutions made by Henkel.

Composites in the automobile industry provide an excellent example of how Henkel is able to develop integrated solutions based on its technological expertise, process know-how and an especially coordinated adhesives portfolio. With weight reduction in modern vehicles having become essential – particularly in the face of strict exhaust requirements – as an avenue for decreasing both fuel consumption and CO_2 emissions, lightweight construction technologies are constantly gaining in importance. Composite materials based on glass or carbon fibers combine savings in weight with enormous strength, thus also offering outstanding properties in relation to safety and crash behavior. With its Loctite MAX series, Henkel is offering polyurethane-based composite matrix resins that cure significantly faster than the epoxy products usually employed for the RTM process. Due to its low viscosity, the polyurethane resins penetrate and impregnate the fiber material more easily and less harshly, thus enabling very short injection times to be applied. Until now, there have been certain limitations in the use of lightweight components as they are restricted in the degree to which they can meet the requirements of the automotive industry in relation to cycle times and level of automation. In particular, composite components have been very rarely used for the visible body parts of production vehicles, as the requisite post-treatment of the surface for subsequent painting has been too costly and time-consuming, due to being based on manual processes. Working together

with KraussMaffei and a network of further partners, Henkel has developed a new surface resin transfer molding process that enables the cost-effective manufacture of paintable composite components under mass production conditions. With their high-quality as-molded surface finish, these can be readily used for automobile body exteriors without the need for post-treatment. This has become possible thanks not least to the development of the Loctite three-component polyurethane-based matrix resin system from Henkel that contains not only the resin and hardener but also a high-performance release agent. This not only ensures that the component is easier to demold, it also means the process readily lends itself to both automation and efficient mass production. The partner network also includes carbon fiber manufacturer Zoltek and the sports car builder and development services provider Roding Automobile. The technology showpiece adopted for the development for this innovative process was a lightweight yet high-strength carbon roof segment of the 950 kg sports car, the superlight Roding Roadster R1.

High-performance adhesives and benzoxazine resins

Modern composites for the aerospace industry must meet a wide range of requirements. In addition to weight reduction, they are also need to satisfy strict performance and processability criteria. Among the solutions offered by Henkel for this market are especially developed benzoxazine resins for injection processes such as VARTM – vacuum assisted resin transfer molding. A family of bezoxazine prepreg systems is also available covering various application requirements. The bezoxazine resins and prepregs offer the particular benefit that they can be stored and transported at room temperature, resulting in a significant reduction in energy consumption. A further advantage is the weight-saving they bring of up to 30 percent compared to conventional metal structures. Aside – for example – from surfacing films, capable of protecting composites from lightning strikes, Henkel has also developed innovative MRO for composite components and structures used in aircraft that are especially tailored to repair certain types of damage while also offering easy application.

During Composite Europe from October 7 to October 9, Experts will be on hand at the Henkel booth on Stand D44 in Hall 8a to provide information on a wide array of products and system solutions that the company is able to offer the composites industry.

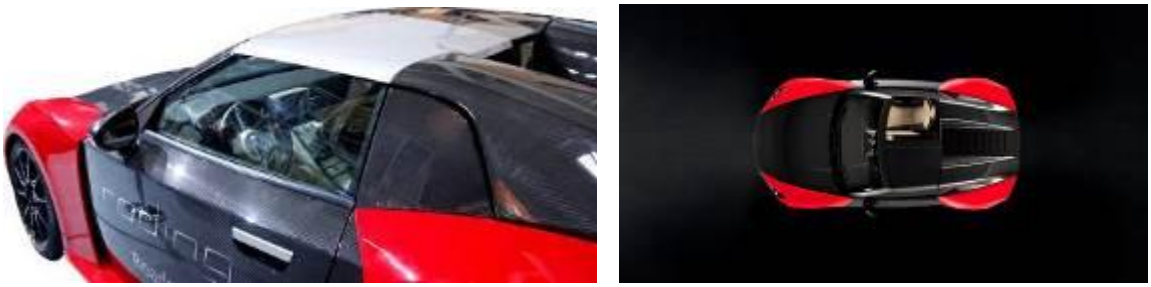
Henkel operates worldwide with leading brands and technologies in three business areas: Laundry & Home Care, Beauty Care and Adhesive Technologies. Founded in 1876, Henkel holds globally leading market positions in both the consumer and industrial businesses with well-known brands such as Persil, Schwarzkopf and Loctite. Henkel employs about 47,000 people and reported sales of 16.4 billion euros and adjusted operating profit of 2.5 billion euros in fiscal 2013. Henkel's preferred shares are listed in the German stock index DAX.

Contact	Lisa Kretzberg	Holger Elfes
Phone	+49 211 797-56 72	+49 211 797-99 33
E-mail	lisa.kretzberg@henkel.com	holger.elfes@henkel.com

Henkel AG & Co. KGaA

The following material is available:

The showpiece of the project is a carbon roof segment of the Roding Roadster R1. In addition to Henkel, the KraussMaffei partner network includes the companies Dieffenbacher, Zoltek, Chomarat, Rühl Puromer, Alpex, Mühlmeier and Roding Automobile GmbH.



Its low weight of 950 kilograms means that the Roding Roadster offers significant advantages in terms of driving dynamics, vehicle wear and efficiency (photo: Roding Automobile GmbH).

Loctite Benzoxazine resins offer a number of benefits in the production of composite components along the entire value chain.

Henkel’s epoxy-based surfacing film offers honeycomb-cored composites enhanced protection against lightning strike (Photo: Getty Images).