

Press Release

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Henkel at JEC Europe 2015

Adhesive Solutions and Composite Materials

As a leading solution provider for adhesives, sealants and functional coatings worldwide, Henkel is exhibiting a range of innovative composite materials and solutions at the JEC covering automotive and aerospace applications. JEC Europe is the world's biggest fair for composite materials. This annual trade show at Porte de Versailles in Paris, France, will be open for business from March 10 through March 12, 2015. Henkel experts will be available at Stand F17 in Hall 7.3 to provide information on the wide range of products and system solutions that the company is able to offer to the composites industry.

Composites for the aerospace industry must meet a wide range of requirements. In addition to weight reduction, performance and manufacturing are in focus. With a weight saving of up to thirty percent over current surface films and a minimized pre-paint preparation, the innovative, epoxy-based surface film Loctite EA 9845 LC Aero Henkel exactly meets these requirements. Due to its copper mesh, Loctite EA 9845 LC Aero also provides excellent protection against lightning strikes.

Improved performance and large-scale production for the aerospace industry

Henkel has developed and brought to market Loctite Benzoxazine (BZ) composites family that includes prepregs, infusion resins, film adhesives and tooling materials. Developed specifically for the aerospace industry, Henkel's Loctite BZ offers a comprehensive solution over commonly used epoxies, phenolics and BMIs, in areas including product performance, storage, processing and health and safety.

Benzoxazines can compete in all ranges of service temperatures and toughness for both primary and secondary structure applications. The prepregs are available with carbon and glass fiber reinforcements in unidirectional tapes and fabric forms, and can be processed readily with automated techniques such as advanced fiber placement.

Compared to state of the art composites Loctite BZ prepregs eliminate the need for refrigerated shipping and storage, enable increased service temperatures, have improved fire resistance, lower residual stress, contribute to better thermal stability and save at least 30 percent of weight compared to conventional metal structures.

On March 11 at 14:00 David Leach, Global Aerospace Composites Segment Manager, will hold a technical sales presentation: Henkel Benzoxazine Composites Move into Series Production, highlighting Henkel BZ composite materials have now moved beyond evaluation and into series production in several different aerospace programs. These include aircraft applications such as auxiliary power units, aircraft interior systems structures and composite tooling. Henkel Benzoxazine technologies are now proven and ready for large scale applications.

With the application of lightweight parts in aircraft construction constantly on the rise, user-friendly adhesive-based repair solutions for composite components are also gaining in importance for airline operators and MRO stations'. The maintenance and repair of these complex structures presents the aerospace industry with certain challenges, with various types of damage and their different repair requirements necessitating innovative and high-performance adhesive technologies. However, under the Loctite brand Henkel offers advanced, ready-to-use adhesive solutions designed to meet a broad range of related demands, from standard adhesive bonding and wet lamination to out-of-autoclave curing and specialty repairs for high-temperature service. Optimum size options in ready-to-use 2-part specialty packaging solutions allow for ease of repair applications that substantially reduce costs for OEM's, MRO's and Airlines and are readily available worldwide via Henkel authorized aerospace distributors.

Cost-efficient large-scale production of composite components for the automotive industry

Composite materials based on glass or carbon fibers combine savings in weight – leading to reduced fuel consumption and CO2 emissions – with enormous strength, thereby offering enhanced safety and good crash behavior. As a global leader in the supply of adhesives, sealants and functional coatings, Henkel works closely with its industrial customers to create tailor-made and integrated solutions designed to meet the challenges that lightweight construction brings to the automobile industry, particularly in relation to cost efficiency and suitability for volume production.

Now a fiber-reinforced composite leaf spring based on the polyurethane matrix resin Loctite MAX 2 from Henkel is being used in the chassis of the new Volvo XC90, a premium crossover SUV of which the innovative rear axle concept is to serve as a platform for other model series. BENTELER-SGL, a leading manufacturer of composite components for automotive applications, is aiming to produce several hundred thousand of these leaf springs per year. In its alliance with BENTELER-SGL aligned to the development and large-scale production of a composite leaf spring for Volvo Cars, Henkel has contributed in particular its process know-how in relation to RTM (resin transfer molding) so as to further optimize the cycle times that occur in the manufacture of fiber-reinforced components. Because of its low viscosity, the polyurethane matrix resin Loctite MAX 2 from Henkel rapidly fills the mold and quickly yet gently impregnates the fiber material, resulting in short injection times. With the curing rate also substantially faster than that of epoxy resins, cycle times are shorter overall.

The use of composite components for the outer shell of standard production vehicles has remained a rarity due to the need for reworking the surface prior to painting – always time-consuming and invariably done by hand. Working with KraussMaffei, however, Henkel has now developed a process for the manufacture of glass or carbon fiber reinforced components for exterior applications using the Surface-RTM process (S-RTM). This generates a surface of sufficiently high quality to meet even vehicle body requirements. And it has all been made possible by Loctite MAX 3. The newly developed three-component matrix system from Henkel based on polyurethane contains not only the resin and hardener but also a high-performance internal release agent. This ensures the easy removal of the component from its mold and thus a surface that can be immediately painted or adhesive-bonded. At JEC Europe, Henkel will be showing the Roding Roadster R1 of which the light and exceptionally strong roof module has been manufactured using this process.

Henkel will also present a new lightweight inner door shell of the Roding R1 manufactured with a Loctite MAX resin demonstrating the excellent flow characteristics of that resin family on very complex geometrical shapes. The lightweight concept is complemented by corresponding assembly adhesive solutions.

During JEC Europe, scheduled for March 10 through 12, 2015, Henkel experts will be available at Stand F17 in Hall 7.3 to provide information on the wide range of products and system solutions that the company is able to offer the composites industry.

Loctite is a registered trademark of Henkel and/or its affiliates in Germany and elsewhere.

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 both in 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.

Photo material is available at <http://www.henkel.com/press>

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Henkel AG & Co. KGaA

The following material is available:



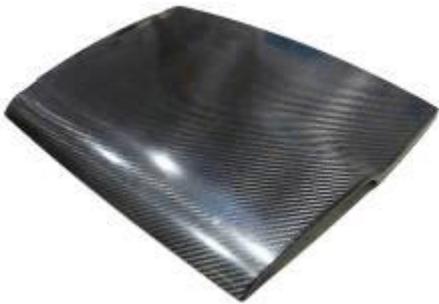
Henkel's epoxy-based surfacing film offers enhanced protection against lightning strike for composite structures. (Photo: Getty Images)



As OEM's design and build more lightweight aircraft with composite parts and structures, the need for more user-friendly and proven bonded repair solutions becomes a major focus for airline operators and MRO's. (Photo: Getty Images)



The rear axle of the new Volvo XC90 features a new transverse leaf spring, made of lightweight composite material. BENTELER-SGL mass-produces the composite leaf springs for the rear suspension using Loctite Matrix resin from Henkel.



Roof segment of the Roding Roadster R1 manufactured with Surface-RTM process.