

FOR IMMEDIATE RELEASE

September 3, 2012

A long-lasting bond for building lighter cars

BARCELONA, Spain – For its favorable strength-to-weight ratio, automobile original equipment manufacturers (OEMs) are increasingly looking to carbon fiber reinforced plastics (CFRP) as a step toward building the “greener” cars of the future. When used as an alternative material, CFRP is helping to reduce the weight and improve the environmental footprint of vehicles without compromising size, comfort or safety. However, using lightweight composites parts comes with its own challenges – CFRPs must be bonded with a number of different materials, including other composites and metals.

At the upcoming Automechanika 2012 show in Frankfurt, Germany, from 11 – 16 September, 2012, Ashland Performance Materials, a commercial unit of [Ashland Inc.](#) (NYSE: ASH) will be presenting its broad portfolio of high-performance Pliogrip™ structural adhesives that provides manufacturers with the solution for creating reliable bonds between carbon fiber composite structures and virtually all relevant materials used in the automotive assembly process.

“Different materials behave differently when exposed to variations in temperatures. As a result, the requirements for the use of structural adhesives in automobile design are complex and differ from application to application,” said Stuart May, sales director, Ashland Performance Materials EMEA Specialities. “For example, when bonding a CFRP component to aluminum, the metal expands more than the composite as temperature increases, meaning the bonding agent needs to facilitate a high degree of relative motion in the joint. Ashland’s range of Pliogrip structural adhesives provides versatility in use across a broad range of assembly requirements, from body panels, such as roofs and front fenders, to closures, such as doors, trunks, and hoods.”

For more than 40 years, Pliogrip structural adhesives have been setting the standard in automotive applications for strength, usability and reliability. Today, the Pliogrip adhesive portfolio covers a vast range of solutions to bonding composite structures to other materials - without using primers and in a cost effective and durable manner.

As of January 2013, Ashland will produce the Pliogrip range in Europe, which will significantly improve delivery service to customers whilst continuing to guarantee top notch product quality and full compliance with European Community Regulation on chemicals and their safe use (REACH).

The examples below highlight the versatility of the Pliogrip adhesive portfolio:

- **For high-strength bonds with chemical and heat resistance**

Pliogrip 5761B structural adhesive is an ideal product for assembly applications requiring top strength bonding and high heat resistance. The product, a two part toughened epoxy system, offers a 60-minute open time with four hours handling strength at ambient temperature. It adheres excellently to carbon fiber and withstands short-term temperatures up to 230°C. For hybrid assemblies with metal, it distinguishes itself with excellent corrosion protection and impact toughness.

- **For fastest clamp times when curing at room temperature**

Pliogrip 7700 structural adhesive is the product of choice for the fastest fixture time at room temperature. The Pliogrip 7700 series of structural adhesives yields unmatched strength build at room temperature with comparable cure progression in thick and thin layers. Handling strength of app 0.7MPa is obtained after only three to four times the open time. The Pliogrip 7700 series of structural adhesives is available in seven different speed grades. The systems are an ideal match on automotive CFRP applications that require a high surface quality, long-term fatigue resistance and low temperature impact toughness.

- **For bonds requiring lower modulus and consistence performance across a wide temperature range**

Pliogrip 2400 structural adhesive is designed specifically for use in bonding radically different materials, offering ideal bonding characteristics in not only very hot, but also very cold conditions. Pliogrip 2400 structural adhesive is engineered to have a relatively low storage modulus at -35°C and a fairly high modulus of app 50 MPa at 85°C. The systems Tg (glass transition temperature) is outside the typical application temperature range, which gives it a nearly flat modulus curve between -35 and 85°C. These unique properties are achieved through molecular architecture and are not dependent on the addition of plasticizer. Due to its high elongation, it is ideal for joining hybrid structures with large differences in thermal expansion, for vibrating parts and for the highest surface-quality requirements.

For more information on Pliogrip structural adhesives, their broad range of application options, and long history of reliability and quality in carbon fiber bonding, please visit an Ashland adhesive expert at Automechanika 2012 in Hall 11.0, stand F37, or contact us at PMEuropesales@ashland.com or at www.pliogrip.com.

Ashland Performance Materials is the global leader in unsaturated polyester resins and vinyl ester resins. In addition, it provides customers with leading technologies in gelcoats, pressure-sensitive and structural adhesives, coatings and elastomers.

In more than 100 countries, the people of Ashland Inc. (NYSE: ASH) provide the specialty chemicals, technologies and insights to help customers create new and improved products for today and sustainable solutions for tomorrow. Our chemistry is at work every day in a wide variety of markets and applications, including architectural coatings, automotive, construction, energy, food and beverage, personal care, pharmaceutical, tissue and towel, and water treatment. Visit www.ashland.com to see the innovations we offer through our four commercial units – Ashland Specialty Ingredients, Ashland Water Technologies, Ashland Performance Materials and Ashland Consumer Markets.

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