

Solvay's Virantage® PESU Tougheners Help Hankuk Carbon Company Expand Use of Composites in Automotive Applications

Solvay's impact modifiers enhance the toughness, heat resistance and processability of a carbon fiber prepreg developed by Hankuk for automotive fenders and roof components

ALPHARETTA, Ga., Nov. 3, 2015 – Solvay Specialty Polymers, a leading global supplier of high-performance polymers, announced last week at the 2015 Composites and Advanced Materials Expo (CAMX) that Hankuk Carbon Co., a pioneering composites manufacturer based in South Korea, selected Solvay's high-performance Virantage® polyethersulfone (PESU) to improve the toughness, heat resistance and processing consistency of a thermoset composite prepreg. The prepreg is intended for use by a major U.S. automotive OEM for a commercial automotive fender and roof application. Solvay's broad offering of such lightweighting solutions underscores the company's proactive support of the industry's growing adoption of carbon composites.

"As an industry leader in high-performance thermoset composite tougheners, Solvay is committed to supporting the success of our global automotive customers who are striving to reduce vehicle weight and meet increasingly stringent emission standards," said Armin Klesing, global business development manager for Aerospace and Composites at Solvay Specialty Polymers. "Our collaboration with Hankuk Carbon on these cutting-edge applications highlights the added value that Virantage® PESU tougheners offer compared to conventional materials."

According to the Institute for Advanced Composites Manufacturing Innovation (IACMI), fiber-reinforced polymer composites could help reduce the weight of conventional passenger cars by 50 percent and improve fuel efficiency by nearly 35 percent without compromising performance or safety. Fabricated using advanced polymer technologies, composites also eliminate corrosion and improve weather resistance vs. metal. They also require lower maintenance.

Solvay's Virantage® PESU tougheners can increase the impact strength of thermoset composites parts by nearly 40 percent and provide a step-change improvement in heat resistance. Because Virantage® PESU micropowders are compatible with a range of epoxy systems, they disperse more quickly vs. conventional impact modifiers, thereby improving processability and consistency in high-volume composite production. Already widely used in prepreg production for commercial and military aircraft applications, Virantage® PESU tougheners are attracting increasing interest from automotive engineers as an integral part of their vehicle lightweighting strategy as they seek to meet emerging CO₂ emission standards.

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About Hankuk Carbon Co., Ltd.

Established in 1984 and based in Korea, Hankuk Carbon Co., Ltd launched its business producing carbon prepreps for fishing rods. Its carbon prepreps have since become applied to improving applications in sporting goods, electronics, architecture, automotive and other industries, etc. As the demand for liquefied natural gas (LNG) rose, the company started producing insulation panels for LNG cargos. They also provide glass papers for the traditional Korean floor heating system.

Hankuk Carbon has three plants with the capacity of 7 million m², located in Miryang and Hamyang, Korea, and reported 2014 sales revenues of \$200 million. The company maintains quality systems such as ISO 9100 and AS 9100. One of the company's subsidiaries, Hankuk Fiber Glass Co., Ltd., is a private company engaged in the manufacture of glass fibers and optical glass. Hankuk Carbon is listed on the Korea Stock Exchange. Learn more at <http://www.hcarbon.com>.

About Solvay Specialty Polymers

Solvay Specialty Polymers manufactures over 1500 products across 35 brands of high-performance polymers – fluoropolymers, fluoroelastomers, fluorinated fluids, semi-aromatic polyamides, sulfone polymers, aromatic ultra-high performance polymers, high-barrier polymers and cross-linked high-performance compounds – for use in Aerospace, Alternative Energy, Automotive, Healthcare, Membranes, Oil and Gas, Packaging, Plumbing, Semiconductors, Wire & Cable, and other industries. Learn more at www.solvayspecialtypolymers.com.

As an international chemical group, **SOLVAY** assists industries in finding and implementing ever more responsible and value-creating solutions. Solvay generates 90% of its net sales in activities where it is among the world's top three players. It serves many markets, varying from energy and the environment to automotive and aeronautics or electricity and electronics, with one goal: to raise the performance of its clients and improve society's quality of life. The group is headquartered in Brussels, employs about 26,000 people in 52 countries and generated 10.2 billion euros in net sales in 2014. Solvay SA (**SOLB.BE**) is listed on **NYSE Euronext** in Brussels and Paris (Bloomberg: **SOLB:BB** - Reuters: **SOLB.BR**).

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