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DIC Corporation

DIC, Seiren and Fukui Prefecture to Begin Providing Samples of Innovative Carbon Fiber–Reinforced Prepreg Sheet

—Boasts the world’s fastest curing time, can be stored at room-temperature, and helps reduce energy consumption—

Tokyo, Japan—DIC Corporation, Fukui-based Seiren Co., Ltd., and the Industrial Technology Center of Fukui Prefecture—which recently completed a research project aimed at commercializing fast-curing prepreg made with carbon fiber composites for automotive applications that was chosen as a major research project by the New Energy and Industrial Development Organization (NEDO) and subsidized for three years (July 2018–June 2021)—announced today that they have developed a fast-curing carbon fiber–reinforced prepreg sheet that boasts the world’s fastest curing time and can be stored at room temperature. The three entities have also developed a mass-production process and this month will begin providing samples of this innovative sheet produced using a demonstration plant operated by Seiren.



Demonstration plant



Innovative carbon fiber–reinforced prepreg sheet

Carbon fiber–reinforced prepreg sheet is a sheet-form intermediate material made by processing bundles of carbon fibers into flat sheets and impregnating the sheets with resin. Thanks to its light weight and exceptional strength, carbon fiber–reinforced prepreg sheet is finding increased application in aircraft, spacecraft and automobiles, with needs in these industries rising for materials that improve fuel economy and reduce body weight, underscoring positive expectations for further demand growth in the years ahead. However, because molding and processing carbon fiber–reinforced plastic (CFRP) composite materials, including prepreg sheets, have typically been time-consuming, technologies that would shorten molding times have been seen as crucial to their wider use.

The research project involving the brought together DIC's Radiation-curable resin (cures in as little as 30 seconds), which leverages its original polymer design technologies; a high-speed tow spreading technology owned by the Industrial Technology Center of Fukui Prefecture; and Seiren's high-precision impregnation technologies, which capitalize on its resin film-forming and coating capabilities, to realize a carbon fiber-reinforced prepreg sheet with a world-leading minimum curing time of 30 seconds. Moreover, unlike conventional epoxy prepreg sheets, this new offering can be stored at room temperature, eliminating the need for frozen or refrigerated storage facilities and thus reducing storage costs.

Going forward, DIC and Seiren will continue working together to encourage adoption of this carbon fiber-reinforced prepreg sheet by manufacturers in multiple industries, including automakers. By improving molding and processing productivity, the companies look forward to further advancing the popularity of CFRP composite materials and in so doing to helping lower the weight, improve the fuel economy and reduce the energy consumption of finished products.

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About DIC Corporation

DIC Corporation is one of the world's leading fine chemicals companies and the core of the DIC Group, a multinational organization comprising over 170 companies around the globe, including Sun Chemical Corporation, in more than 60 countries and territories. The DIC Group is recognized as a global leader in the markets for a variety of products essential to modern lifestyles, including packaging materials, display materials such as those used in television and computer displays, and high-performance materials for smartphones and other digital devices, as well as for automobiles. Through such products, the Group endeavors to deliver safety and peace of mind, and color and comfort, to people everywhere. The DIC Group also seeks to contribute to a sustainable society by developing innovative products that respond to social change and which help address social imperatives. With annual consolidated net sales in excess of ¥700 billion and 22,000-plus employees worldwide, we pledge to continue working in close cooperation with our customers wherever they are.

Website: <https://www.dic-global.com/en/>

About Seiren Co., Ltd.

Founded in 1889, Seiren Co., Ltd., is a comprehensive textiles manufacturer with integrated operations encompassing yarn production, weaving, processing and sewing. Leveraging its accumulated textiles-related technologies, the company has built a diverse portfolio of high-value-added products in five business areas: Electronics Materials, Fashion/Sports/Inner Materials, Automotive Upholstery Materials, Medical Materials and

Environment/Life Materials. The combination of integrated planning, manufacturing and sales functions and Seiren's proprietary Viscotecs digital production system, which makes use of original information technologies, facilitates high-variety, inventory-free, and resource- and energy-saving production of small lots with short delivery times. The company is fully committed to responding to customer needs and ensuring customer satisfaction and to the development and sales of highly differentiated products. Guided by its corporate philosophy, summarized in three Japanese expressions—"nobi-nobi," "iki-iki," and "pichi-pichi," representing, respectively, "independence," "responsibility" and "commitment"—the company is working to create higher added-value, improve corporate value and transform itself into a company for the 21st century.

Website: <https://www.seiren.com/english/>

About the Industrial Technology Center of Fukui Prefecture

The Industrial Technology Center of Fukui Prefecture is a comprehensive testing and research agency open to companies in the prefecture. The three pillars of its operations are R&D, technical support and technology transfer. In the area of CRFP composite materials, the agency is promoting a variety of efforts, from R&D to assistance with product development, based on an original tow spreading technology patented by Fukui Prefecture, to resolve issues and further accelerate commercialization by local companies. The agency has also established the Fukui CFRP Industrialization Center, which is charged with providing support for both R&D and technology management.

Websites:

Industrial Technology Center of Fukui Prefecture: <http://www.fklab.fukui.fukui.jp/kougi/> (available in Japanese only)

Fukui CFRP Industrialization Center: <http://www.fklab.fukui.fukui.jp/kougi/fcc/index.html>