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HUNTSMAN
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Huntsman and V-Carbon Technologies Combine Expertise for End-of-Life Recycling Solutions for Carbon Fiber Composites

There is no denying the advancements made possible through the use of composite materials in the world today. Aviation, transportation, and energy sectors simply could not deliver the 30+% fuel and energy efficiencies without the use of these strong and lightweight composites. While these achievements are significant, there is one area where efforts to improve the sustainability of products has lagged behind – recyclability.

A commitment to a CO2-neutral economy requires a sustainable approach to carbon fiber composite recycling, one that can address the waste volumes being produced by the composite industry and the end-of-life (EOL) volumes that are building annually with limited options other than disposing in landfills or incineration.

Known for enriching lives through innovation with material solutions that meet customers' most demanding needs, Huntsman is actively pursuing solutions to solve the composites recycling challenge. While several companies are currently active in finding industrial and economically viable solutions for recycling reinforcement fibers with a focus on carbon fiber, very few, if any, are looking at recycling the entire composite, including the fiber and the resin or its chemical components.

Experts in Huntsman's Advanced Materials division approached several recycling companies to propose collaboration efforts targeting the recovery or recycling of both the fiber and the resin and chemical components. They found an ally in V-Carbon Technologies, a UK-based advanced materials technology company.

V-Carbon has developed the first fully integrated carbon fiber (CF) circular economy for use in the aerospace, automotive, wind energy, and industrial sectors. A highly innovative and integrated process chain has been developed to deliver advanced materials systems using high performance second life carbon fibers. V-Carbon's technology driven approach is disruptive; it addresses the whole process chain from fiber to formulated products. Impressively, recovered carbon fiber material systems retain their mechanical performance for high performance, high value applications across the relevant market segments and are easily integrated into existing manufacturing platforms.

The V-Carbon technology is based on a patented "chemolysis" process that is able to deliver a complete circular economy with no waste where the carbon fiber as well as the chemical resins obtained at the end of the recycling process provides the opportunity for repurposing.

That's where Huntsman brings its chemical expertise.

“With our extensive experience in developing and manufacturing chemical products, we are well-matched to work with V-Carbon to analyze the resin recyclate that results from their chemolysis process,” said Klaus Ritter, Technology Intelligence Manager for Huntsman’s Advanced Materials division. “By studying the output of the recycling process, we can identify new uses for the material, which helps solve the current end of life issue with high performance composite materials.”

Huntsman and V-Carbon have agreed to join their efforts to develop and optimize the recovery of the chemicals present in the “chemolysis recyclate,” which has previously not been possible, and offer sustainable uses for the recycled materials.

“Working with Huntsman allows us to provide even more value to our customers and to society as a whole,” said Damian J. Cessario, Founder and CEO from V-Carbon Technologies. “We were already successful in producing carbon fiber yarn from our process. Our collaboration with Huntsman opens up additional opportunities for circularity in manufacturing by identifying sustainable solutions for the entire carbon fiber composite material.”

About Huntsman: *Huntsman Corporation is a publicly traded global manufacturer and marketer of differentiated and specialty chemicals with 2022 revenues of approximately $8 billion from our continuing operations. Our chemical products number in the thousands and are sold worldwide to manufacturers serving a broad and diverse range of consumer and industrial end markets. We operate more than 60 manufacturing, R&D and operations facilities in approximately 30 countries and employ approximately 7,000 associates within our continuing operations. For more information about Huntsman, please visit the company's website at www.huntsman.com.*

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