Advancing Carbon Fiber Manufacturing Technology

The Carbon Fiber Technology Facility (CFTF), established in 2013, is the Department of Energy’s only designated user facility for carbon fiber innovation. The CFTF, a 42,000 sq. ft. facility, provides a platform for identifying high-potential, low-cost raw materials, including textile, lignin, polymer, and hydrocarbon-based precursors. Using the CFTF, ORNL is developing optimal mechanical properties for carbon fiber material, focusing on structural properties and process optimization.

The facility, with its 390 ft. long processing line, is capable of custom unit operation configuration and has a capacity of up to 25 tons per year, allowing industry to validate conversion of its carbon fiber precursors at semi-production scale. The CFTF supports the technology development and commercial deployment of carbon fiber in the United States for use in clean energy applications. Additionally, research focuses on further understanding the kinetics of carbon fiber manufacturing, energy consumption, and environmental impact. Across its energy science and technology user facilities, ORNL delivers breakthroughs from generation to distribution and storage to end use, accelerating America’s transformation to a clean, efficient, flexible, and secure energy future.
The Carbon Fiber Advantage

Carbon fiber is a strong, stiff, lightweight enabling material for improved performance in many applications for automobiles, wind energy, oil and gas, and infrastructure. New, innovative manufacturing processes for low-cost precursor development and conversion technologies at the CFTF hold the key to reducing carbon fiber cost for energy applications. Similarly, innovative performance-focused materials and processes could drive significant performance improvements for national security applications.

Working with ORNL

As a DOE designated user facility, the CFTF is available to industry, academia, national laboratories, government agencies, and nongovernmental organizations. Access is granted through various partnering mechanisms, and both proprietary and nonproprietary work can be conducted. All partnerships are conducted in compliance with statutory restrictions, specifically export control. For more information on how to work with ORNL, visit www.ornl.gov/partnerships.

DOE’s CFTF

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