

SUSTAINABILITY: CIRCULARITY

FINALIST: CFP Composites Ltd supported by DEECOM®

CFP set out to demonstrate that a fire-resistant composite, previously considered non-recyclable, could be fully reclaimed at end-of-life and remanufactured into the same product at production scale, without compromising material performance.

Working in collaboration with Longworth, CFP utilised the DEECOM® pressolysis process to recover 100% of the carbon fibre and silicone-based resin polymer, with no degradation to fibre surface quality or performance. The reclaimed fibre was then successfully reincorporated into CFP's existing proprietary, high-volume manufacturing process without requiring operational modifications, additional processing steps, or changes to curing thermodynamics.

Testing demonstrated that laminates containing up to 50% recycled carbon fibre (rCF) retained their exceptional thermal performance of +1,300°C, with only a slight reduction in performance observed at rCF contents between 50% and 100%.

This achievement is believed to represent a world first in the reclamation of fire-resistant composite materials while retaining material performance, followed by the manufacture of new fireproof products incorporating significant quantities of both reclaimed fibre and matrix polymers.

The potential environmental impact is substantial. For a typical high-performance automotive battery programme, replacing 50% of virgin carbon fibre with rCF could save approximately 12 tonnes of virgin fibre and divert around 65 tonnes of CFRP from landfill each year. At full-scale manufacturing, this could increase to approximately 60 tonnes of virgin fibre saved and more than 300 tonnes of CFRP diverted from landfill per manufacturing tower annually.

The innovation directly addresses increasing customer and regulatory demand for recycled and fully circular material solutions without compromising performance. With more than 50 current opportunities already in progress across the automotive, bus and truck, marine, rail, aerospace, defence and stationary power sectors, the technology provides a scalable pathway towards repeated closed-loop recycling and increasingly circular composite supply chains.

This capability also provides CFP with a significant point of differentiation, offering a sustainable, high-performance composite solution that is currently unavailable from competitors operating within these markets.



Learn more at: www.cfpcomposites.com