

SUSTAINABILITY: CIRCULARITY

FINALIST: Airtech Advanced Materials Group

Airtech Advanced Materials Group has demonstrated a practical route to tackling one of the composites industry's largest consumable waste streams: polyester breather fabric used in vacuum bagging and prepreg manufacturing. Breather is typically single-use and, due to its high porosity, contributes significantly to both waste volume and Global Warming Potential.

Working with Plan B Circular Ltd and supported by NCC, Airtech collected and processed 1 tonne of waste polyester breather, converting it into high-quality recycled PET (rPET) pellets through advanced thermomechanical extrusion. This created viable second-life applications, including breather-to-breather closed-loop recycling, breather-to-peel-ply textile recycling and use in 3D-printed tooling.

This achievement supports the composites sector's growing focus on circularity. NCC estimates that around 50,000 tonnes of consumables are used annually across European composite manufacturing, which itself represents just 15-20% of the global market, highlighting the scale of the opportunity. Closed-loop breather recycling offers manufacturers a practical way to keep thousands of tonnes of material in use as adoption grows.

The project demonstrates how a material traditionally treated as a disposable manufacturing consumable can instead become a valuable secondary resource. By converting used breather into an established commodity material, the approach creates practical routes for reuse while reducing dependence on virgin polymers.

Airtech provided the waste material and detailed knowledge of breather manufacture and its lifecycle, while Plan B Circular developed the recycling process and processing parameters needed to produce high-quality rPET. NCC assessed the scale of the challenge, explored potential solutions and used life cycle assessment to identify the most impactful and feasible routes.

The work demonstrates the potential for collaborative, supply-chain-led innovation to address a shared industry challenge and establish scalable circular solutions for composites manufacturing consumables.

Learn more at: www.airtech-amg.co.uk

