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TPRC, Fokker and TenCate jointly win JEC Innovation Award for smart recycling of thermoplastic composites for aeronautics

The ThermoPlastic composites Research Center (TPRC) in partnership with the Fokker business unit of GKN and TenCate Advanced Composites have jointly won the JEC 2016 Innovation award for Aeronautics with their Carbon / PPS (C/PPS) leading edge access door panel, made utilizing recycled thermoplastic composites.

This success demonstrates the viability of integrating recycled thermoplastic composites into an existing manufacturing process. The access door panel is made using TenCate Cetex® TC1100 (C/PPS) woven thermoplastic composite material, reclaimed during the production of the main rudder that is then chopped and compression molded, then incorporated into the overall rudder structure, thus forming a closed-loop recycling process. This novel use of reclaimed materials further strengthens the optimization of secondary processes for thermoplastic composites that also include welding, overmoulding and spin-welding inserts. The award was presented during the JEC Americas awards ceremony on Wednesday May 4th 2016 in Atlanta, GA, United States.

Design freedom

Designed by Fokker, the access door panel demonstrates a number of interesting design features. These include molded stiffening ribs, thickness variations and in-molded holes with bosses. The reclaimed and chopped C/PPS semi-preg allows for an increased design freedom, resulting in a lightweight component with a large degree of function integration.

Green composites

A key advantage of thermoplastic composites is their capacity to be recycled, which is increasingly important factor when selecting material solutions in an environmentally aware supply chain. Nick Tiffin, European Director of Sales & Marketing of TenCate Advanced Composites stated: "We are delighted to support this project and applaud the outcome and recognition as it demonstrates the end-of-life possibilities alongside optimising "buy to fly" recycling options for thermoplastic composite materials."

TPRC researcher Iqbal Rasheed on the collaboration between the partners: "It is a fruitful outcome of the excellent collaborative effort between TPRC and its members. The diverse expertise of the involved partners has led to this innovation, which wouldn't have been possible without the significant contribution from TenCate Advanced Composites and Fokker. At TPRC we developed the process and designed the mold suitable for the chopped woven C/PPS prepreg, TenCate Cetex®, material. The material used in this process is actual reclaimed material from the production process at Fokker."



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ThermoPlastic composites Research Center (TPRC)

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For more information:

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About the TPRC

TPRC, the ThermoPlastic composite Research Center, is a not-for-profit organization that performs research under the guidance of its industrial members who share the goal of increasing the market for thermoplastic composites and who together define the research roadmap. Since the opening of its laboratory in 2012, TPRC has steadily grown its activities in the aerospace automotive markets. TPRC



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strives to cooperate with current and future leading companies and other organizations in the field of thermoplastic composites.

About Fokker Technologies:

Fokker Technologies is a business unit of GKN Aerospace. It develops and manufactures highly engineered advanced aircraft systems and components for aircraft manufacturers and provides integrated maintenance services and products for aircraft owners and operators. Fokker was founded in 1919. Today, headquartered in Papendrecht, the Netherlands, the Fokker business unit operates facilities in the Netherlands, Romania, Turkey, Canada, Mexico, USA, China, India and Singapore, and employs approximately 4,900 people.

About TenCate Advanced Composites

TenCate Advanced Composites is a leader in the development and production of advanced thermoplastic and thermoset prepreg composites for high-end industries. Its product portfolio is incorporated in space, aerospace and automotive products, and numerous other industrial applications. TenCate Advanced Composites has production facilities and operations in North America, Europe and Asia.

About Royal Ten Cate

Royal Ten Cate (TenCate) is a multinational company that combines textile technology with chemical processes and material technology in the development and production of functional materials with distinctive characteristics. TenCate products are sold throughout the world.

Systems and materials from TenCate come under four areas of application: safety and protection; space, aerospace and automotive; infrastructure and the environment; sport and recreation. TenCate occupies leading positions in protective fabrics, composites for space and aerospace, antiballistics, geosynthetics and turf.