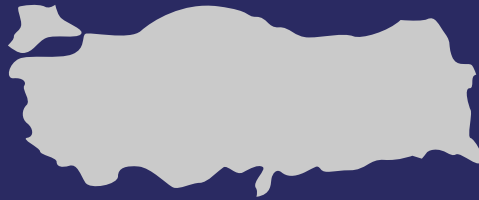




## PRODUCTION TECHNIQUES TO MANUFACTURE BIOCOMPOSITES FROM NATURAL FIBRES

BPREG

Türkiye



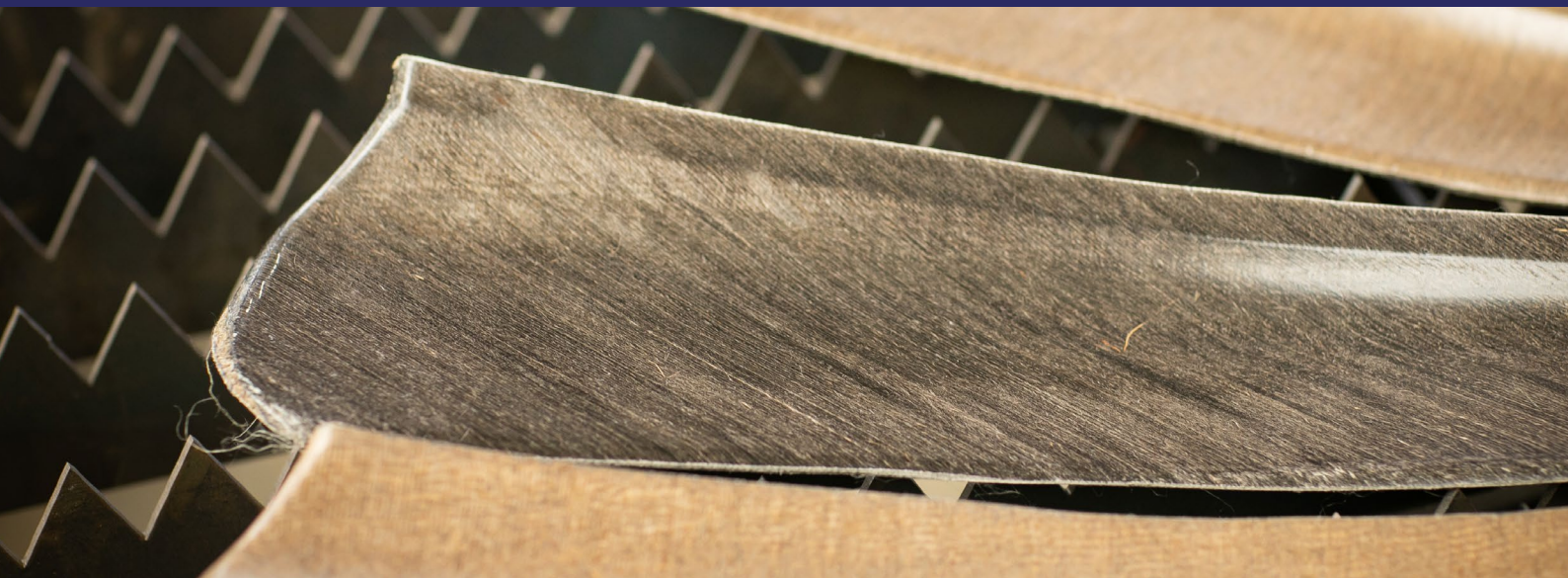
Burcu Karaca Ugural

Established in 2017, BPREG designs, develops and manufactures natural fibre composites. These are used to create materials which are sustainable, lightweight and biodegradable, slashing CO2 emissions by using carbon-neutral natural fibres.

These materials can be thermoformed (heated to a pliable forming temperature, and then placed in a set mould) into any shape, and used for almost any purpose, with numerous potential applications throughout the automotive and mobility sectors.

The company's demand for natural fibres has facilitated strong links with local farmers, driving growth in the country's agricultural sector, while empowering women in rural areas to undertake flax and hemp cultivation. This aligns with the UN's Sustainable Development Goal to advance gender equality, as well to the goal of focusing on sustainable production patterns and climate action.

BPREG manufactures products whose fibres are pre-impregnated with a thermoplastic resin matrix. Compatible with materials as diverse as carbon fibre, cork and glass, they could be used in a spectrum of industries and applications. Automotive adoption helps to reduce vehicular weight and CO2 outputs, while any manufactured parts will be fully biodegradable.





Manufacturers around the world are constantly seeking lightweight, biodegradable materials which can be used to replace their existing counterparts which lack sustainability.

With 15 years of research experience in natural fibre composites, Turkish textile engineer Burcu Karaca Ugural has developed a patented production technique which combines flax and hemp fibres with thermoplastic polymers to create strong, sustainable materials. As well as supporting carbon-neutral farming, her company has contributed to the revival of the dormant Turkish tradition of flax farming.

“The LIF programme was my first opportunity to learn about entrepreneurial life,” says Burcu, “and I learned everything about being an entrepreneur from it.” Describing her experiences as “precious”, she talks about the “very friendly and very warm atmosphere where you can ask any questions to learn from other people’s experiences. LIF taught me to be persistent, to believe in yourself, trust your instinct and not give up easily. The programme lets you create an impact, making products that go into the real world and make a real difference.” This has included reinstating the tradition of Turkish flax growing, following a historic period in which this farming skill had died out nationwide.

BPREG presently has five employees, but an imminent funding round is due to double the company’s workforce. Partnerships with universities, original equipment manufacturers (OEMs) and farmers are pivotal to the operations of the firm, with corporate relationships well-established throughout Europe. One UK company is already producing cargo bikes from this biocomposite materials, with BPREG setting out plans to open a UK office to handle any future European growth. Anticipated seed funding is also planned to help stabilise the future production cycles and product groups.

The Royal Academy of Engineering’s Leaders in Innovation Fellowships (LIF) programme supports talented entrepreneurs from around the globe to turn their engineering innovations into impactful, sustainable businesses.

Royal Academy of Engineering  
Prince Philip House  
3 Carlton House Terrace  
London  
SW1Y 5DG

info-lif@lif.raeng.org.uk  
Tel: +44 (0)20 7766 0600  
www.raeng.org.uk  
**@RAEngGlobal**  
Registered charity number 293074