

The K-Briq: The Sustainable Brick

OPPORTUNITY

The built environment contributes to around 40% of the UK's total carbon emissions.

The production of new carbon-intensive materials, such as clay bricks, contribute significantly towards this.

So in line with creating a true circular economy, Kenoteq produced a brick that uses recycled material from the built environment. Optimising and mainstreaming this could impact construction's carbon output forever.

PROJECT

Testing & optimising a 90% recycled brick

The K-briq is a new sustainable brick developed for over 10 years by academics from Heriot-Watt University. This novel product is made from 90% recycled material. There

is no equivalent product on the market; the K-briq has the highest recycled content and the lowest energy required for production.

It is not fired like traditional clay bricks. No cement is used in its production. It uses building waste, such as bricks, stone and plasterboard cut off. This is crushed to make a powder, mixed with Kenoteq's secret binding agent and then molded using a press. This production technique and brick content dramatically reduce the K-briq's emissions.

This CSIC funded project assessed the feasibility of the K-briq and readied it for commercial use. It included the creation of a pilot production facility, testing and optimisation of the product, and building a demonstration structure to monitor the brick in a real world environment.

Making new building materials from old construction waste.



Innovation Support: Product Innovation
Sub Sector: Building Sustainably

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OUTCOMES

A brick with 1/10th of the emissions

- Delivered 1 new recycled unfired brick that produces just 10% of the carbon of a fired clay brick
- Found to have double the strength of common bricks (N/mm²), be more durable and cost 47% less to produce
- Anticipated £11m increased turnover for Kenoteq and supply chain by year 5
- 5,355 tonnes of CO₂eq per annum saved once 10m bricks per annum are produced
- Won Circular Breakthrough at the Herald Pioneer Awards, Innovation Award at the Scottish Resources Awards, & the Converge Creative Challenge Award 2018
- Featured on high-profile national and international publications, such as the One Show, Mashable, & CNN International

SUPPORT

Total Project Value: £469k

CSIC Contribution: £214k

PROJECT DURATION

Sep 2017 - Jul 2021

NEXT STEPS

This project has laid solid foundations for the commercialisation of the K-briq. Going forward partners will focus on upscaling its production and mainstreaming its use.

CSIC is also exploring uses for the K-Briq in our own Innovation Factory – leading by example that this is not only a sustainable material but one that is lighter, stronger and still cost efficient.



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