

UK company with innovative technology which recycle tiles and ceramic waste into zero-carbon concrete alternative seeks partners for pilot manufacturing production

Summary

Profile type

Technology offer

Company's country

United Kingdom

POD reference

TOGB20250402019

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

- Türkiye
- Italy
- Germany
- Spain

Contact Person

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Term of validity

3 Apr 2025
3 Apr 2026

Last update

3 Apr 2025

General Information

Short summary

UK alternative cement company seeks partnerships with manufacturing organisations for a commercial trial. With the capacity to supply up to 50,000 tons for the trial, this unique technology currently under exploited has potential to significantly drive down carbon emissions and provide competitive advantage to early market entry and adoption, as further legislation drives the change required for carbon reduced cement alternatives. A commercial agreement with technical assistance is sought.

Full description

UK company established in 2022 has developed an innovative technology to recycle tiles and ceramic waste into a zero-carbon concrete alternative, removing the reliance on cement which is problematic to the environment. Developed through a joint research project with 4 partners including leading Universities, supported by a Research Grant of £150k. Supply chain and commercial conversations already underway with multiple major organisations in the construction and engineering industry.

The company has developed a zero carbon, sustainable alternative to cement and are launching a circular economy initiative and targeting 250,000 Tn per year. Focused on recycling porcelain, ceramics and sanitary ware, they have successfully processed porcelain waste tiles into powder, as a substitute for cement. The company's solution allows

for the replacement of 20% of Portland cement producing a 19.2% reduction in CO₂, LCA Index. In addition, they can replace 75% of GGBS (ground granulated blast-furnace slag) with their powder. The company benefits from the Carbon Credits scheme per tonne offset. With the global trend towards zero-landfill solutions, legislation has already started to appear, that supports this innovative solution. Product is at TRL L8.

In the UK alone there is circa 100,000 Tn per year of unused, and 800,000 Tn per year of used porcelain ceramic or sanitary ware sent to landfill or used as aggregate. There is no known tile or sanitary ware facility to enable recycling at scale. Portland cement is highly energy intensive, responsible for about 8% of CO₂ emissions. UK imports circa 6,000,000tn of GGBS, which is unsustainable.

The UK company is seeking medium to large scale cement manufacturers in Germany, Italy, Spain and Turkey for a pilot project to use up to 50,000 tons of their tile powder within the partner organisations operations over a 3-year period. Technical support and expertise will be provided to integrate the technology into the partner's operational manufacture. Partner feedback is sought to support technical product development and exploit commercial opportunities. A commercial agreement with technical assistance is sought.

Advantages and innovations

The innovation provides significant environmental advantages while maintaining mechanical and physical properties.

Technical reports indicate 20% replacement has zero impact on structural integrity and Newton strength, supporting its use in the construction industry.

The initial aim to replace 30% of cement with ceramic waste has increased to potential for 75% replacement through research and development testing with leading universities, who have also provided tests to accelerate the aging process by 100 years to understand the structural integrity over time.

Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

IPR applied but not yet granted

IPR Notes

Worldwide patent is pending. Copyright and trademark secured

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 11: Sustainable Cities and Communities**

Partner Sought

Expected role of the partner

The UK company is seeking medium to large scale cement manufacturers in the construction and marine industries. They will have the capability of producing up to 250,000 tons per year, to use this innovative new product to reduce their carbon footprint through use of supplementary cementitious materials.

Target sector: Construction, coastal defence, marine.

Role/tasks to be performed by the partner: The partner will trial the product through a live pilot and give feedback on milling particle size particular to application.

Partner benefits include access to a cost and efficacy comparative product that will enable potential competitive advantage.

The Partner will have access to technical expertise honed through a 5-year Research and Development phase.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **SME 50 - 249**
- **Big company**
- **SME 11-49**

Dissemination

Technology keywords

- **02006001 - Materials, components and systems for construction**
- **02006006 - Construction engineering (design, simulation)**
- **10003004 - Recycling, Recovery**

Targeted countries

- **Türkiye**
- **Italy**
- **Germany**
- **Spain**

Market keywords

- **09007002 - Manufacture of construction materials, components and systems**
- **09007004 - Engineering and consulting services related to construction**

Sector groups involved

- **Maritime Industries and Services**
- **Construction**
- **Energy-Intensive Industries**