A selection of artificial reef cubes from our commercial partners

Creating Zero Carbon Cement for a healthier environment

We know that the building sector needs radical changes to meet the climate challenge.

Our vision is simple - to treat all the available tile and sanitaryware waste material into our zero-carbon cement alternative, for the benefit of the marine and construction industry.

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NICER IUK Presentation Sept 2024 – Church House, Westminster

Introducing Porcement

PORCEMENT was created following an initial project with Exeter University into the concept of recycling tiles into new tiles in the UK. This quickly developed into recognising the value of the milled tile powder.

Our unique process is recycling end-of-line and unwanted porcelain, ceramic, glass tiles and sanitaryware that would otherwise be consigned to landfill, to create a new, zero carbon and 100% waste-based material for concrete manufacturing.

Working with Exeter University and Cardiff University as the Research partners and sponsored by Innovate UK and the Welsh Government.

We are the only company in the UK and Europe who are utilising this technology (Patent application submitted July 24 to protect product and process).

Sponsorship and R&D

NICER – Sponsored by **Innovate UK and Exeter University as R&D partner** – Re cycling used and unused porcelain and ceramic tiles and sanitaryware into a Supplementary cementitious material. Finishes Oct 2024

SFIS – Sponsored by **Welsh Government** – Feasibility and business case of locating a site for recycling tiles and sanitaryware in Wales - finishes Sept 2024

Aberthaw, use of **Porcement** and **Fly Ash** blend as a sustainable building material with **Cardiff University as the R&D partner** – Sponsored by **CCR Energy** - Dec Feb 2024.

Innovation

We're establishing a circular economy stream for porcelain and ceramics. Using waste porcelain or ceramic tiles and porcelain sanitaryware as a cement substitute that is environmentally beneficial.

The UK alone has circa 75,000 to 150,000 Tn of unused porcelain ceramic tiles that is re used as aggregate or even sent to landfill annually and there is circa 800,000 Tn of used porcelain ceramic or sanitaryware to be used.
There is no known at scale tile recycling facility.

Simultaneously, **Portland cement is highly energy intensive, responsible for about 8% of carbon emissions** while the UK imports 6,000,000tn of GGBS, which is unsustainable. We can offer an environmentally friendly, long term, sustainable alternative.

With Exeter University (laboratory tests) **and our commercial partner** (factory trials) we have processed porcelain waste tiles through milling and used the powder as a substitute for cement.

We can replace 27% of Portland cement or 75% of GGBS with PORCEMENT, with superior environmental performance over the industry standard and suitable mechanical and physical properties.

And thus, so reducing the CO2 emissions of one earths most carbon intensive materials.

Results – factory trials

Factory trials for the manufacture of full-scale concrete elements.

Business Model

Two Supply Chain opportunities
UK, Circa 150,000 Tn. p.a of clean
Circa 800,000 Tn. p.a of used.

This is a fraction of available product in the ROW.
Waste management opportunities for used supply.

Legislation and Customer expectation
Can it stay the same?

Vertically integrated
To operate at scale to reduce costs and keep the pricing competitive.

Opportunities to meet high volume demand both UK and opportunities to **replicate abroad, scalable.**

Multi-use product
High Volume lower value and also a higher value, lower volume Niche products.

Barriers to entry
We own the IP, research, process, know-how and relationships

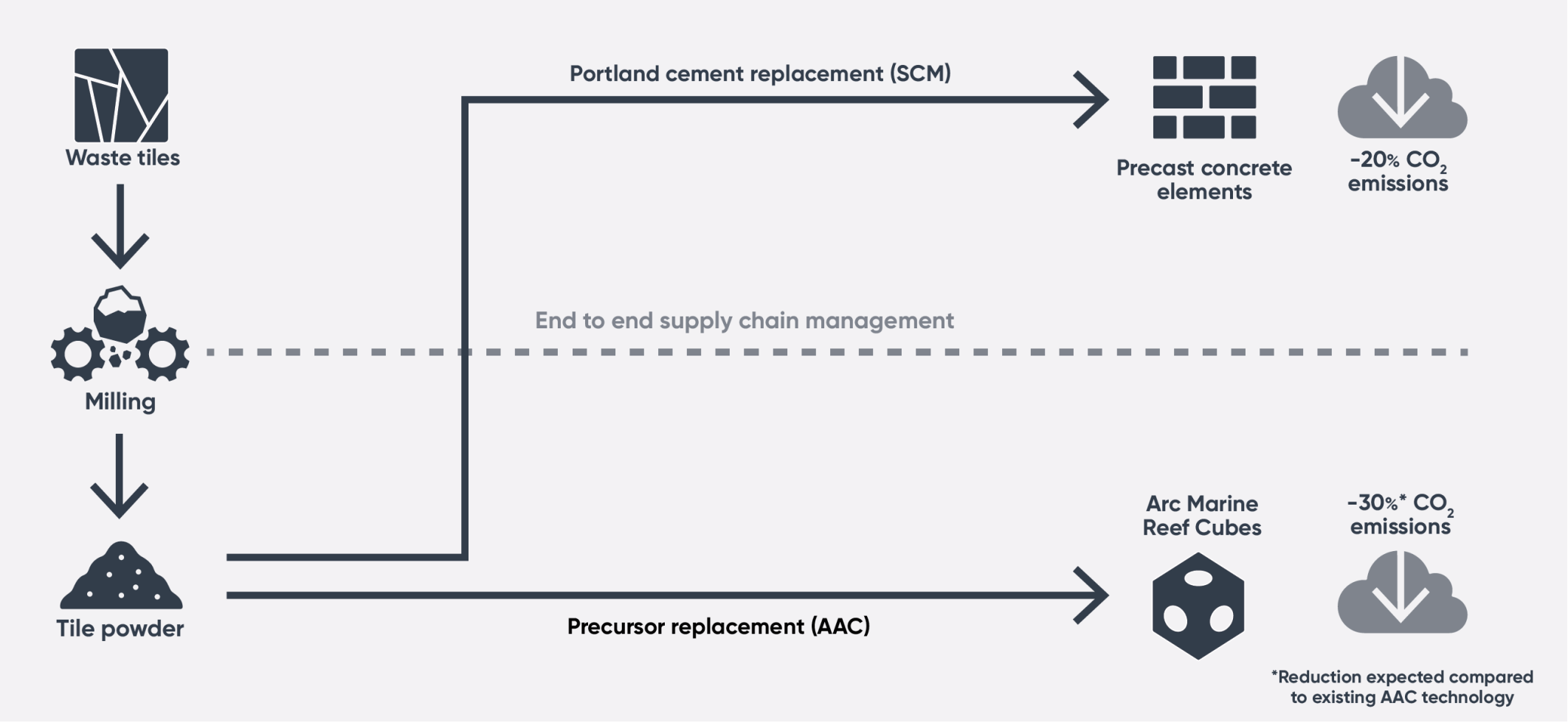
An experienced team
Business, a Russell Group University and pioneering low carbon manufacturer

Corporate Carbon credit validation and revenue opportunities

SEIS certification for investors

Beneficial Patent Box 10% CT and R&D tax opportunities

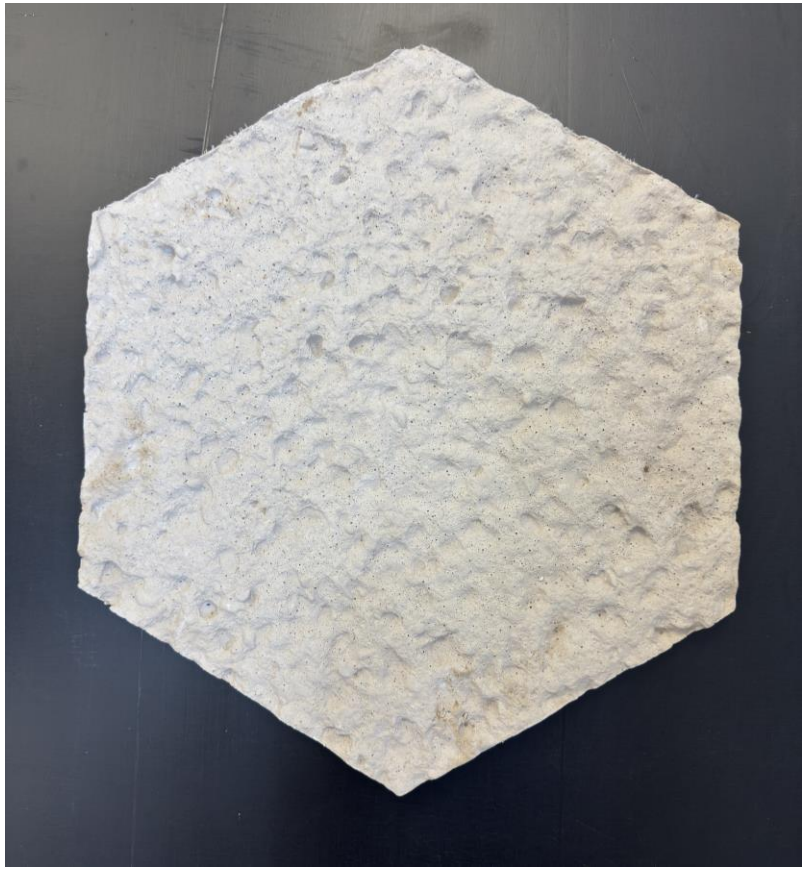
Illustration



POR | CEMENT

Market and Interest to date

- We have confirmed the technical feasibility.
- We have established that the market is interested in the CO2 benefits, and it can see the value.
- We have established that it is possible to produce at scale.
- We have established that there is an interested and willing supply chain, we are looking at additional waste management partners to increase the supply chain volumes.
- We have registered IP to protect the technology in UK and Europe.
- We want to be producing in each of the Home nations, helping to provide local solutions to local challenges.
- We see the potential and we recognise the scale of the opportunities, we know we will need to innovate and would like to ensure we maximise the value of the product stream, to that end we are constantly looking at future collaborations and ongoing R&D into new product development.
- We also recognise the international opportunities and that once successfully established at home we can replicate overseas.



Win, Win, Win

Planet & Marine environment, Company and Shareholders, Staff & Customers

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PORCEMENT – Recycling Tiles into a concrete alternative

DeepWind Conference

Presentation 8th Oct 2024.