Product Overview

Cemfree zero-cement concrete

www.**cemfree**.com

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Cemfree, zero-cement concrete is a practical sustainable solution for today's construction industry. Cemfree activates ground blast furnace slag (GGBS) producing an ultra-low carbon alternative to concrete mix designs that traditionally use Portland cement (OPC).

GGBS has been widely used in concrete manufacture for over 100 years and has a proven track record of significantly increasing the durability of concrete.

Cemfree is acknowledged as an innovative and viable solution to reducing the carbon legacy of concrete, the world's most widely used construction material.

Innovative Technology

Cemfree reduces the embodied CO_2 of your concrete by removing all of the OPC content

Although a landmark in materials innovation, Cemfree produces structural concrete using existing production techniques, installation principles, and delivery infrastructure. This makes its adoption extremely simple without the need to invest in new equipment or change working practices.

Concrete's Carbon Legacy

Portland cement (OPC) generates 913kg of CO_2 for each tonne of finished product. It accounts for around 5-8% of global CO_2 emissions in the form of greenhouse gases, making it the third highest man-made producer of CO_2 after transport and energy generation.

Enda Gorman, Cemfree Commercial Manager says:
"Cemfree offers clients, developers and contractors significant scope to reduce the carbon footprint of their activities in response to industry targets as well as their own corporate missions on sustainability and energy efficiency."

Comparing the impacts

The UK's total GGBS grinding capacity is 2,920,000 tonnes / year

If this was all utilised to make Cemfree binder, we could produce over

7,500,000 m^3

of low carbon concrete

If this was all used in place of traditional OPC-based concretes this equates to a saving of over

2,100,000 tonnes of CO_2 a year

In real terms, this is the equivalent of taking over **750,000 cars** off the road

Average annual UK car emissions: 2.7 tonnes
Source: Energy Saving Trust Factsheet 2012-2013

Or, the same amount of CO_2 emissions as would be released in **75,000 space shuttle launches**

Average space shuttle launch emissions: 28 tonnes.
Source: Discover Magazine

Or, the equivalent embodied CO_2 required to supply hot water to **3,500,000** UK households each year

Hot water for average UK household: 600kg CO_2 / year.
Source: Energy Saving Trust Factsheet 2012-2013

Benefits

1. Improved chemical resistance
Improves resistance to chloride ingress.

2. Embedded CO_2
Mix dependent, a carbon reduction of up to 90% is achievable.

3. Reinforcement
Potential reduction in crack-control steel required in your project.

4. Reduced requirement for joints
Reduced shrinking enables engineers to design elements outside of conventional aspect ratios, significantly reducing the number of joints overall in a structure.

5. British-Made
Cemfree has been developed and manufactured in the UK, ensuring the highest standards are met at every stage of the process.

Awards

With the potential to make a major contribution to the concrete industry's sustainability record, Cemfree has been quick to gain industry recognition, winning various prestigious innovation awards, including the coveted Skanska award in Supply Chain Green Solutions and the prestigious CONSTRUCT award for Materials and Product Innovation.

Cemfree was also the first product out of 300 submissions to be awarded 'Pioneer Status' in the Crossrail Innovate18 awards for sustainability.

Anglian Water received a Water Industry Achievement award in 2016 for its collaboration with Cemfree in active trials, winning the Carbon Reduction Initiative of the Year category.

Cemfree was also a winner in the Shell Springboard Awards, a major showcase for sustainable innovation. Angus Gillespie, Vice President for CO_2 at Shell, said, *"Shell Springboard celebrates the inventiveness of companies in the face of big challenges from climate change and the rising demand for energy. Cemfree embodies this idea to the core."*

For every m³ of Cemfree concrete used in place of traditional OPC-based concrete, significant reductions in CO_2 can be achieved.

The CO_2 savings from one structure alone can be huge!

For example, the Empire State Building contains over

47,400 m³

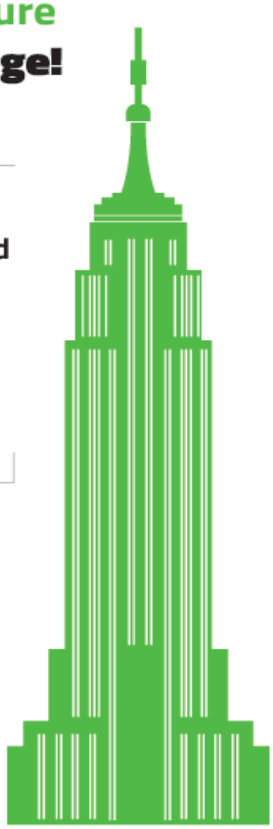
of concrete.

If this single structure had been **constructed with Cemfree concrete**, it would represent a saving of

13,319 tonnes of CO_2

The embodied cost of **1 return journey from London to New York is 1.87 tonnes CO_2 per passenger.**

If the Empire State Building had been constructed using **Cemfree concrete**, the **CO_2 saving would be equivalent to over 7,000 return flights from London to New York to visit the structure.**



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