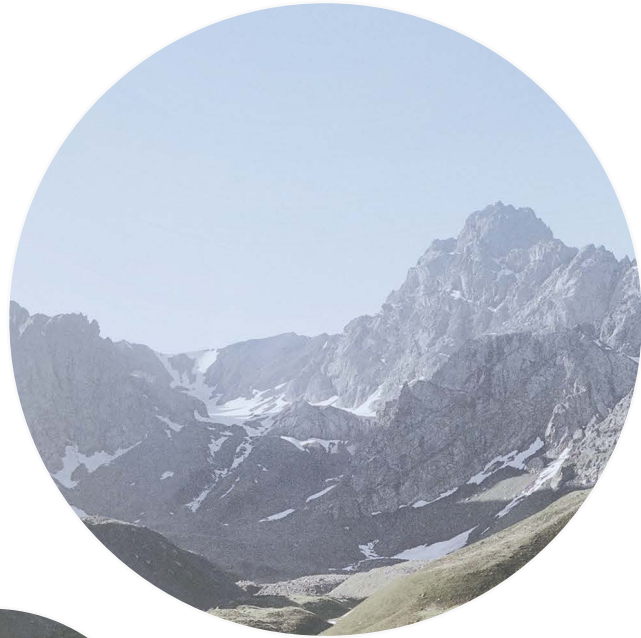




carbon8
a circular impact company

Introducing: The CO₂ntainer

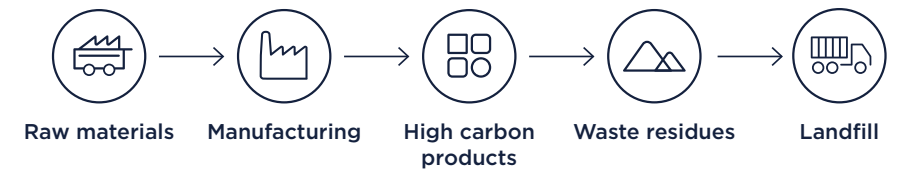
A modular solution
to industry circularity

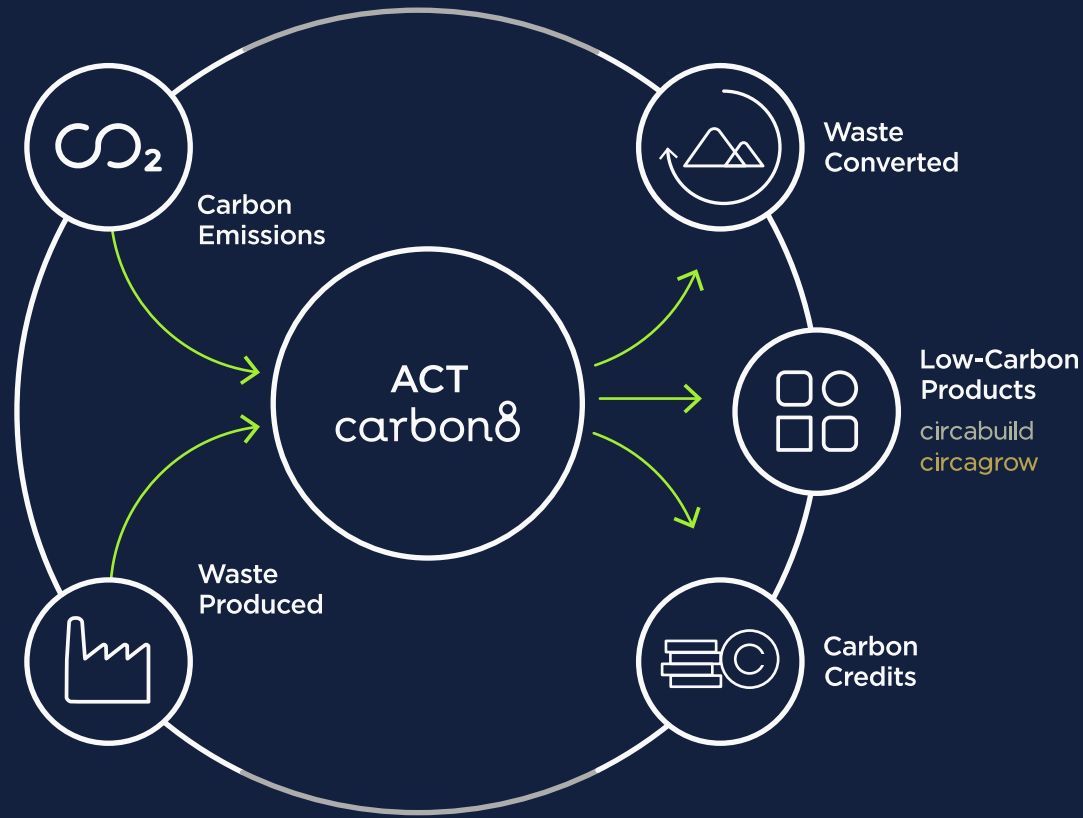


The Problem

Hard-to-abate sectors represent over 20% of global emissions according to the International Environment Agency (IEA) and are a significant contributor to industrial residues. In the face of real climate crisis, these industries are under increasing pressure to act now.

At Carbon8, we change the linearity of current value chains and transform the product-waste process into a cycle. The linear model, based on a take-make-use-dispose-system, is leading to **emissions, residual waste** and **the associated expense**. This is not only represents an environmental but also an economic cost.





Enabling a closed-loop system; recycling waste streams through carbon sequestration.

Enabling Circularity: Our Approach

We are in the business of Circular Impact.

Circular Impact is creating value by engineering circular and sustainable solutions. Solutions that directly impact both your business and our environment.

We specialise in disrupting the carbon value chain by turning waste products into assets. Our Scientists & Engineers are indisputable experts in pioneering circular solutions through understanding how different industrial processes lead to various outputs and how they can be efficiently captured, combined and reused.

We've developed a proprietary technology that captures carbon and uses it to treat industrial residues, transforming them into sustainable outputs like aggregates for the construction industry.

The CO₂ntainer

A modular solution to industry circularity

The CO₂ntainer is the realisation of our Accelerated Carbonation Technology (ACT) as a compact, modular CCUS solution. Our innovative Plug 'n Play system allows for seamless integration and transportation across the globe in two 40FT containers.

The CO₂ntainer captures CO₂ at the source, which becomes an ingredient to carbonate industrial residues destined for landfill. A CO₂ntainer is able to treat up to 12,000 tonnes of residues annually in the process. ACT, housed inside the CO₂ntainer, enables the production of carbonated products for the construction industry. This includes carbon negative aggregate, which has a variety of applications including in concrete blocks, road filler and green roofing substrate.



Photo: The CO₂ntainer at Vicat Group's cement plant in Montalieu, France. In 2020, Carbon8 deployed its Plug 'n Play solution to the cement plant as the first commercial deployment of the containerised system.



Main Features



CO₂ capture

Direct capture from flue stack,
1,500tonnes- 4,000tonnes
CO₂ per annum



12,000 tonnes

Waste treated
per annum



Seamless integration

No interference with
production



100% automation

Manual or automatic
operation



Cloud connected

Industry 4.0
capabilities



20 minutes

Safely captures and
permanently stores CO₂
within 20 minutes

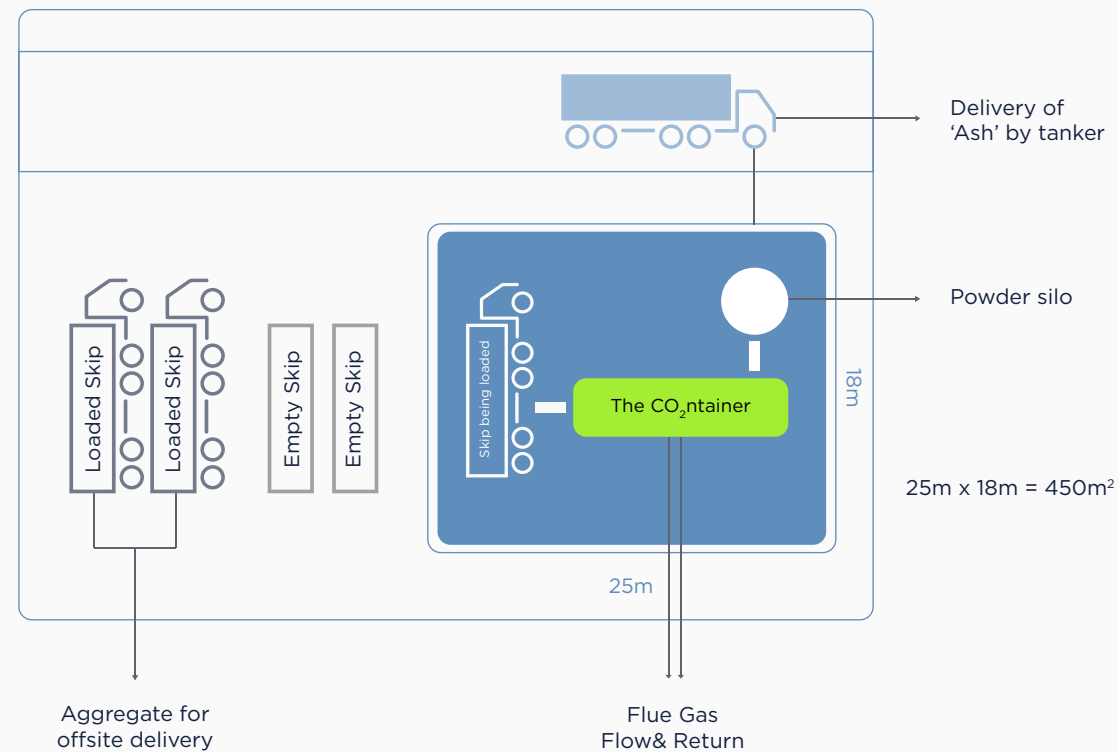
Industries

- Cement
- Steel
- Paper / pulp
- Biomass
- Energy from Waste

How does it work?

The CO₂ntainer is based on Accelerated Carbonation Technology (ACT), an award-winning technology, developed and patented by Carbon8's Scientists & Engineers.

Layout Onsite



Basic layout overview of scenario-based example, the setup can vary

The Input

Carbon Capture: CO₂ is captured directly from the flue stack without the need for pretreatment and then permanently stored in the manufactured materials indefinitely. The amount of carbon captured will vary depending on the reactivity of the residues treated, ranging between 10 - 30% by weight.

Residues: The residues produced onsite are used as a direct ingredient into the process, added to the system from a silo. These residues are reactive to CO₂, and in managed conditions, can act as a carbon sink. Our Scientists & Engineers have tested over 1,000 samples across hard-to-abate industries, from cement bypass dust (CBD) to bottom ash (IBA), and steel slags to Air Pollution Control Residues (APCr), understanding them as a valuable ingredient to capture carbon and manufacture new materials.

The Output

Manufactured Products: By combining captured carbon with industrial residues, our solution manufactures CircaBuild and CircaGrow, our carbon negative alternatives to virgin aggregate and fertiliser. These new materials become inputs to a circular system, where waste products are transformed into assets.

[FOR MORE INFORMATION, CLICK HERE](#)

Accelerated Carbonation Technology

- Based on natural process of carbonation
- Reaction is controlled, managed and accelerated to take 15 - 20 minutes
- Industrial residues contain calcium and magnesium compounds making them reactive
- Metals and contaminants are stabilised
- pH of residues is reduced
- Exothermic carbon negative process
- Permanent CO₂ capture



Presenting **CircaBuild** and **CircaGrow**

CircaBuild and CircaGrow are carbon negative products manufactured by our award-winning technology, which carbonates industrial residues. The CO₂ is permanently and safely stored within the new material, contributing to the decarbonisation of industry, while giving the former ash a new life, making it a circular product.

CircaBuild are sustainable, carbon negative alternatives to virgin aggregate. The CircaBuild products are high-performing aggregates that reduce the carbon footprint of any project, without compromising quality.

Primary properties

- Optimised for intended application
- Particles are rounded to sub-rounded
- Grading adaptable for client needs

Applications

- Concrete blocks
- Ready-mix concrete
- Pipe bedding
- Road construction
- Fertiliser / soil improver

Key Properties



Carbon negative



Lightweight



Hygric properties



Insulating properties



Adaptable to client requirements



From lab to industry

Development of the solution

Our founders began their early work on the technology in the 1990s. After inventing and patenting Accelerated Carbonation Technology, Carbon8 was formed as a spin out from the University of Greenwich. Further years of pioneering research and development, and to the realisation of ACT as a standalone plant, the result of which is our innovative CO₂ntainer.

To develop and scale the solution, Carbon8 has worked with proud partners and clients over the years.

“As part of our commitment to limit our environmental impact, Vicat has looked at a number of innovative ideas to reduce its carbon emissions. We were attracted by Carbon8 Systems’ two-part technology proposition: capturing the CO₂ that Montalieu emits and using it to produce an aggregate that can be marketed to industry.”

Laury Barnes-Davin, Scientific and R&D Director at Vicat Group

Partners:



Pilots and demonstrations:



Memberships:



Why choose the Co₂ntainer?



Direct cost savings

Divert residues from landfill with sustainable waste management and offset associated costs



Carbon footprint reduction

Permanently and safely store CO₂ from point source



High-value manufactured products

Enable circularity through implementing sustainable alternative building materials in production or market them for a profit

Operational Benefits

- **Smooth integration** and implementation with minimal downtime
- Reaction is **exothermic**, requiring minimal energy inputs
- Engineering **deployment services** offered
- **Indisputable experts** in carbonation and industrial residues
- Carbon requires **no pretreatment** or purification
- **Small space footprint** required
- Landfill-destined **residues are valorised**, given a new life
- **Sustainable materials** manufactured onsite for integration or revenue generation
- **Real and ready** solution, available now
- **Adaptable** to client site, residues and needs

[CONTACT US NOW](#)



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Carbon8's mission is to deliver positive change through innovation by disrupting the carbon value chain and bending it into a circle. That's more than sustainability. That's Circular Impact.