



Leading the way to net zero concrete

Lower carbon
solutions for the
built environment



Leading the way to net zero concrete

At Heidelberg Materials, we aim to be the industry leader on the path to net zero concrete.

Our CO₂ reduction targets are grounded in science and underpinned by a clear roadmap.

We are committed to achieving net zero concrete by 2050 using a multidimensional approach, focusing on four key strategies: Innovative Products & Technologies, Circular Economy, Carbon Capture Utilization & Storage and Natural Carbonation.

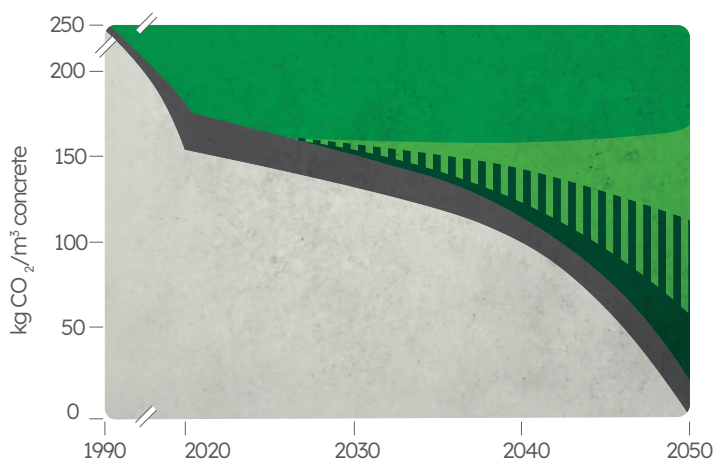
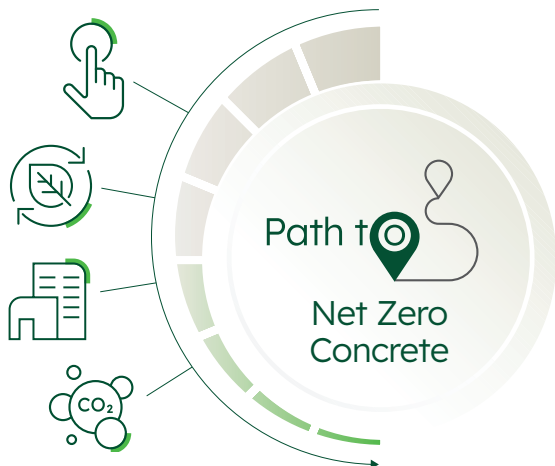
A multidimensional approach

Innovative Products & Technologies

Circular Economy

Carbon Capture Utilization & Storage

Natural Carbonation



Innovative products & technologies

Portland-Limestone Cement (PLC)



ecocem[®]
PLC

EcoCem[®]PLC is a portland-limestone cement (GUL/Type IL) produced using ordinary clinker ground with limestone. Compared to General Use (GU) or ordinary portland cement (OPC), EcoCem[®]PLC provides up to a 10% reduction in CO₂ intensity without sacrificing performance. The GWP will vary by cement plant.

Global Warming Potential (kg of CO₂-eq/tonne of cement) **EcoCem[®]PLC 801**

ecocem[®]
PLUS

EcoCem[®]PLUS was developed by Heidelberg Materials in Edmonton, Alberta to reduce the carbon footprint of cement and concrete. EcoCem[®]PLUS (GULb) is a blended portland-limestone cement capable of reducing carbon intensity by over 20% while providing equal or better performance. EcoCem[®]PLUS is produced at the cement plant by inter-grinding clinker, Type F fly ash and limestone.

Global Warming Potential (kg of CO₂-eq/tonne of cement) **EcoCem[®]PLUS 632**



EvoBuild™ Low Carbon Concrete

When you're looking to reach your sustainability targets without compromising performance and aiming to lower the carbon footprint of your project, EvoBuild™ Low Carbon Concrete can help you achieve your goals. Available for a broad variety of applications, our product range consists of EvoBuild™ Bronze, EvoBuild™ Silver, EvoBuild™ Gold and EvoBuild™ Zero. This range considers all of your specific targets, timelines and budget needs, ensuring there is a sustainable solution for your project.



Our technical experts are experienced with optimizing concrete mixes by incorporating strategies that include:

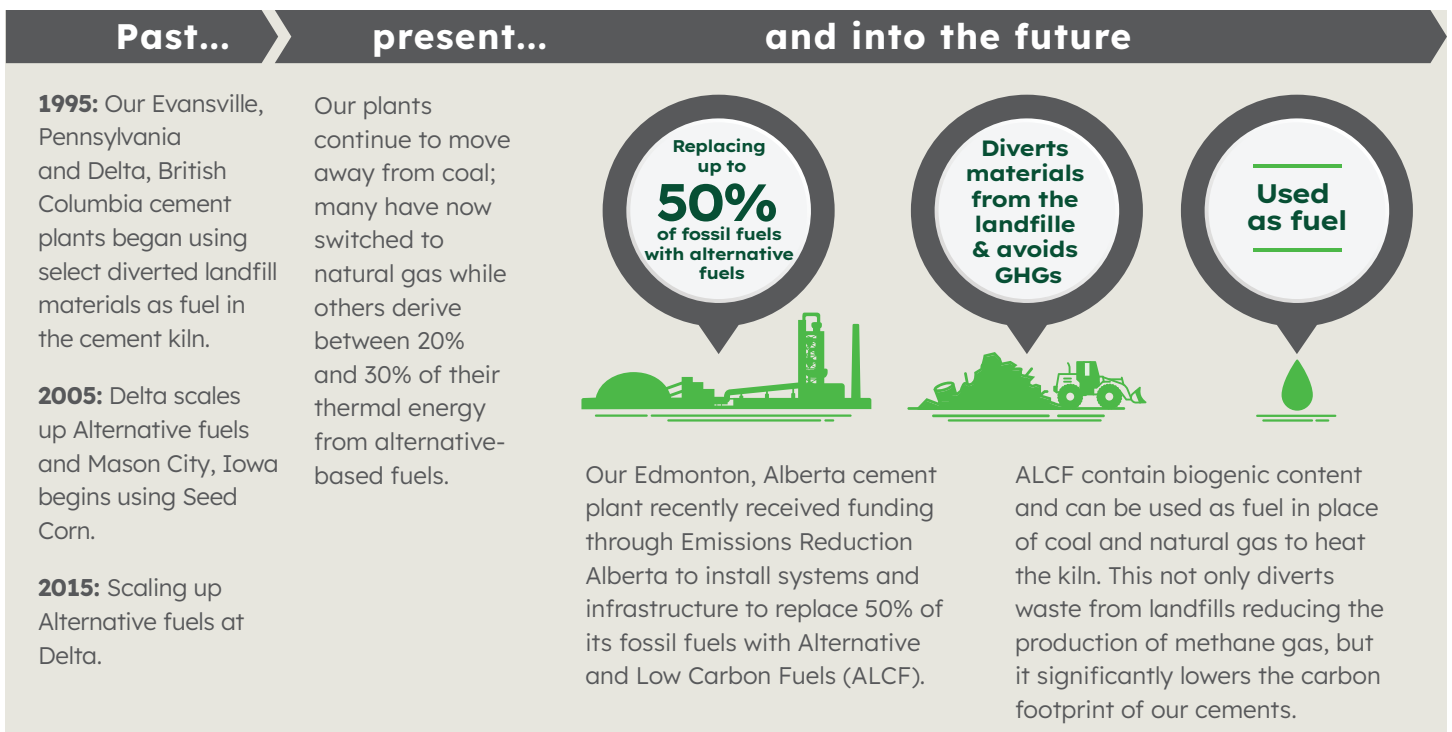
- Cement type, including the use of EcoCem®PLC and EcoCem®PLUS
- Use of supplementary cementitious materials, including post-industrial wastes such as fly ash, slag, and silica fume
- Aggregate gradations to improve particle packing
- Strength-enhancing admixtures
- Extended strength-gain schedules

More importantly, these solutions are stackable, meaning carbon savings can add up to different levels, as required to meet your project goals. Carbon savings can vary depending on performance requirements, haul distances, and energy use at the manufacturing facility related to local climatic conditions. However, when measured against industry average **Environmental Product Declaration (EPD)*** values, our EvoBuild™ concrete mixes provide significant carbon savings for your project. These savings are supported by mix-specific, third-party verified EPDs which provide transparent and comparable information about the life cycle impact of our building materials.

*Environmental Product Declarations (EPDs) are essentially a “nutrition label” for building materials that shows transparency about their specific environmental impact.

Alternative fuels

Low carbon alternative fuels are predominantly comprised of materials that are typically sent to landfills like construction and demolition debris, wood, biosolids and others. This offsets the use of carbon-intense fuels like coal and petroleum coke in the cement production process. The timeline below details the progression of alternative fuel use in several of our plants:





Circular economy

Beyond being a sustainable, resilient, and versatile building product, concrete is also 100% recyclable at end of life, in addition to its ability to incorporate and entrap other material constituents that may otherwise be considered waste. The added benefits of using byproducts in our value chain to further support the circular economy allows us to manufacture building products with recycled materials for your projects. A large part of our investments and research efforts are directed towards achieving this goal, exploring solutions that include the use of materials historically destined for landfills, such as granulated blast furnace slag, landfilled ash, contaminated clays, as well as demolition concrete and excavation spoils.



Natural carbonation

This is a natural process where concrete absorbs CO₂ from the atmosphere over its life cycle, acting as a carbon sink. Efforts are underway to better quantify the impact of natural carbonation in North America.



CCUS

We recognize that cement is responsible for 5-7% of global emissions, and that cement contributes a significant portion of the carbon footprint of concrete.

Therefore, Heidelberg Materials is focused on developing carbon capture technologies that enable CO₂ reductions on a large scale, capturing CO₂ in its purest form for downstream use or permanent/safe storage.

Heidelberg Materials is developing North America's first full-scale carbon capture, utilization and storage (CCUS) solution for the cement industry at its Edmonton plant, with the goal of capturing up to one million tonnes of carbon dioxide (CO₂) annually. Captured emissions would be transported via pipeline and permanently sequestered by a third party.

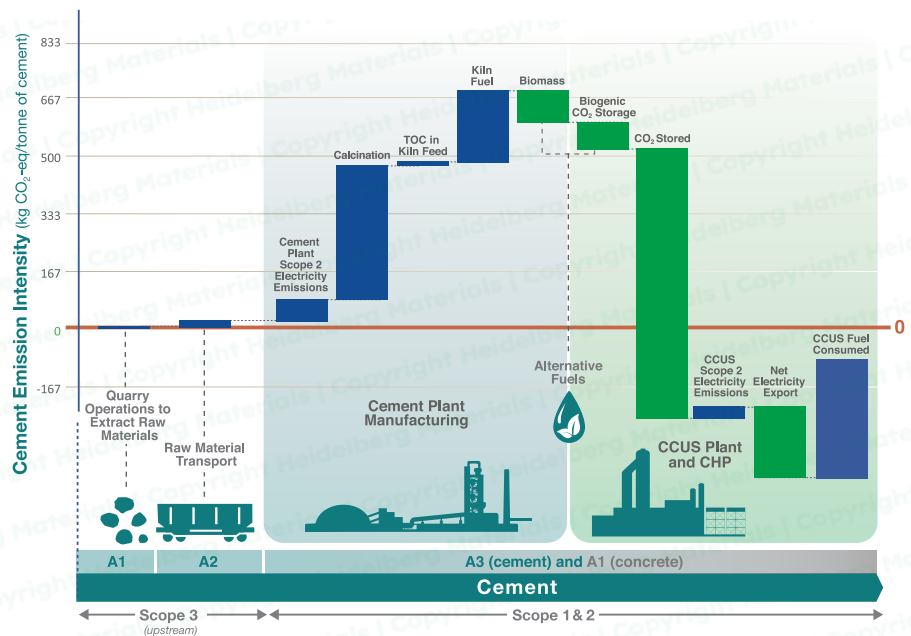
Supporting the Circular Economy



Recycled Concrete Aggregate, WA, USA

Our operations in Washington, USA are undertaking a lighthouse Recycled Concrete Aggregate (RCA) project that will allow us to increase our acceptance of Construction and Demolition (C&D) waste and enhance our ability to incorporate RCA into fresh concrete.

Operations began for recycle crushing in July 2022, with a plan to:



This graphic is a representation of the multi-dimensional approach we use to reduce carbon. Copyright © 2022 Heidelberg Materials. All rights reserved.

Heidelberg Materials recognizes that there is no silver bullet to achieving net zero concrete. Our multidimensional approach—which includes innovative products & technologies, circular economy, CCUS, and natural carbonation—is an effective strategy in making net zero concrete a reality.

Contact us today to learn more:

heidelbergmaterials.us

heidelbergmaterials.ca