



europaean **energy**innovation

Connecting Europe's Stakeholders in Energy and Transport

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Transforming CO₂ into added-value construction products

Insight

The European Green Deal has set ambitious targets for GHG emission reductions for the process industry, including steel and cement production. While transitioning to renewable energy can alleviate a significant part of GHG emissions, it offers no solution for process-inherent emissions. Residual, hard-to-abate CO₂ emissions from industrial processes will need to be captured, processed, and recycled into new products to meet these targets. The Carbon4Minerals project aims to address this challenge.

Concept

The core concept of Carbon4Minerals is to address the simultaneous use of CO₂ from industrial flue gases with current and future waste streams to

unlock a vast stock of resources for innovative low-carbon binders and construction materials. This cross-sectorial innovation has the potential to reduce European CO₂ emissions by 46 Mt/y, equal to 10% of the EU process industry emissions, while safeguarding the competitiveness of the European industry.

Solution

The cement industry generates 6-8% of global GHG emissions and seeks alternatives to Portland clinker to reduce CO₂ emitted during limestone calcination. Carbon4Minerals develops innovative technologies for CO₂ capture and use in the production of carbon-negative minerals for high-value construction products, with the potential to

reduce CO₂ emissions by 80-135% compared to cement-based reference materials. The project addresses challenges arising from dwindling supplies of low-carbon resources for cement production, while reducing emissions by 10% and safeguarding competitiveness.

About the CARBON4MINERALS Project

The Carbon4Minerals project, funded by the European Union's Horizon Europe research and innovation program under Grant Agreement No. 101091870, with an EU contribution of €14,846,811 in funding and a total cost of €20,322,450.

Start date: January 2023

Duration: 48 Months

Project coordinator: VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.

carbon4minerals.eu

