



THE CHALLENGE

Carbon dioxide (CO₂) is a naturally occurring greenhouse gas present in the Earth's atmosphere. However, human activities have led to an exponential increase in levels of the greenhouse gas through actions such as the burning of fossil fuels for industrial production. CO₂ acts to trap heat in the atmosphere, leading to global warming. Currently, CO₂ re-use via biological processes is one of the most promising and valuable technological ways to reduce otherwise harmful CO₂ emissions, potentially making CO₂ a valuable commodity rather than a pollutant. However, research behind full development of CO₂ re-use technologies is in its infancy and several technical issues remain unresolved, including industrial-scale implementation.

PROJECT OBJECTIVE

The overarching objective of **BIOCON-CO₂** is to reduce greenhouse gas emissions and avoid overexploitation of natural resources. **BIOCON-CO₂** aims to develop and validate a platform of flexible and versatile techniques capable of using biological processes to transform raw CO₂ waste from the iron, steel, cement and electric power industries into value-added chemicals and plastics. Exploring novel biotechnological solutions, the project intends to generate new knowledge to develop commercially viable strategies for reducing Europe's dependency on fossil fuel resources. This will lead to the increased sustainability of the chemical industry and provide support for European leadership in CO₂ re-use technologies.

AT A GLANCE

PROGRAMME: HORIZON 2020
(BIOTEC-05-2017)

INSTRUMENT: Research and Innovation
Action (RIA)

DURATION: January 2018 – December
2021 (48 months)

CONSORTIUM: 18 partners in 8 countries

COORDINATOR: Acondicionamiento
Tarrasense Asociación (LEITAT), Spain



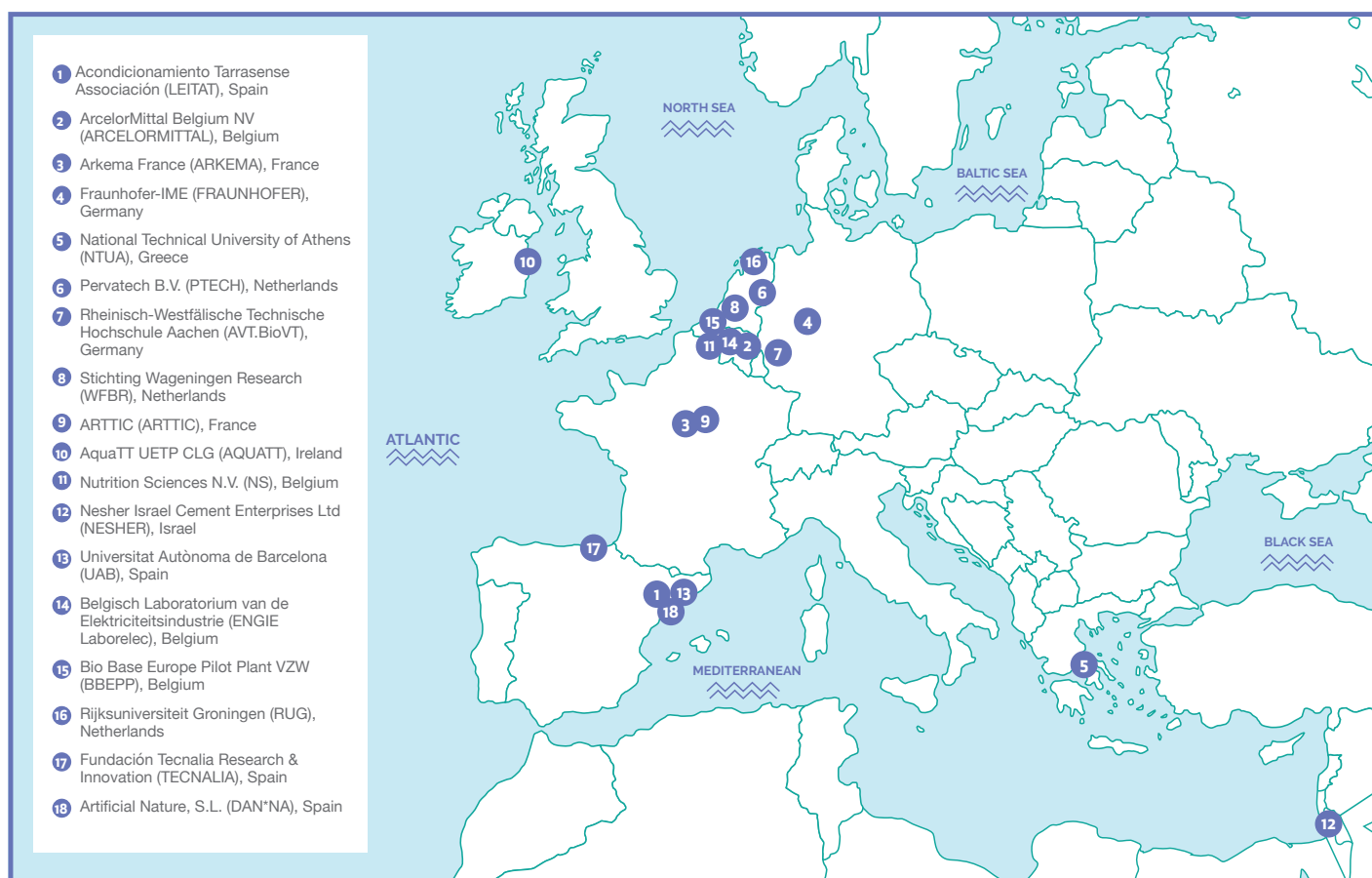
Steel casting production process ©ArcelorMittal

EXPECTED RESULTS

- Assessment and validation of **three low-energy microbial processing systems** capable of converting CO₂ emissions from iron and steel manufacturers into valuable industrial products.
- **Production of four chemical building blocks** produced using CO₂ re-use technologies that have application in the food/feed, chemical (acrylates, polymers, surfactants) and plastic industries.
- Development of strategies for **improving industrial productivity** by using novel and sustainable forms of energy in industrial production processes.
- **Pilot installation in an industrial setting** upon project completion which demonstrates and validates the effectiveness of four chemical building blocks produced using CO₂ re-use technologies.
- Creation of a detailed mid-and-long term exploitation plan to commercialise the project outputs and **support the EU as a global leader in CO₂ re-use technologies**.
- **Improved public perception of CO₂ re-use technologies** through transparent and responsible communication, dissemination, knowledge transfer and exploitation of outcomes of the project.

CONSORTIUM

BIOCON-CO₂ has a consortium of recognised industry experts and leading academic organisations, comprised of 18 partners (5 SMEs, 5 large industries, 4 research and technology organisations and 4 universities) based in 9 countries.



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 761042 (BIOCON-CO₂). This output reflects the views only of the author(s), and the European Union cannot be held responsible for any use which may be made of the information contained therein.

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