BIOCON-CO_2

BIOtechnological processes based on microbial platforms for the CONversion of CO_2 from the ironsteel industry into commodities for chemicals and plastics

www.biocon-co2.eu

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THE CHALLENGE

Carbon dioxide (CO_2) 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. CO_2 acts to trap heat in the atmosphere, leading to global warming. Currently, CO_2 re-use via biological processes is one of the most promising and valuable technological ways to reduce otherwise harmful CO_2 emissions, potentially making CO_2 a valuable commodity rather than a pollutant. However, research behind full development of CO_2 re-use technologies is in its infancy and several technical issues remain unresolved, including industrial-scale implementation.

PROJECT OBJECTIVE

The overarching objective of **BIOCON-CO_2** is to reduce greenhouse gas emissions and avoid overexploitation of natural resources. **BIOCON-CO_2** aims to develop and validate a platform of flexible and versatile techniques capable of using biological processes to transform raw CO_2 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 CO_2 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 9 countries

COORDINATOR: Acondicionamiento Tarrasense Asociación (LEITAT), Spain

Steel casting production process ©ArcelorMittal

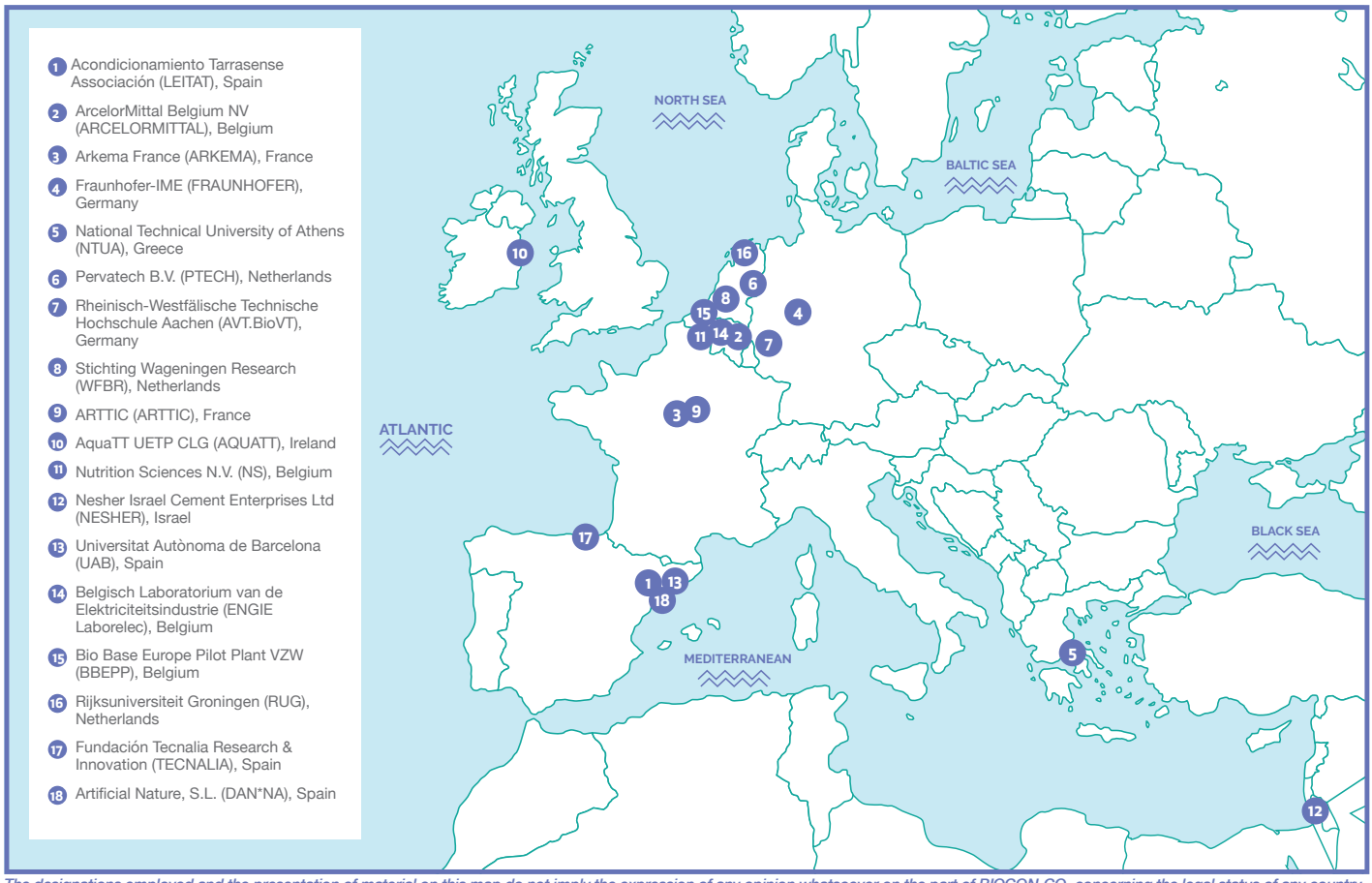
BIOCON-CO_2

EXPECTED RESULTS

- Assessment and validation of **three low-energy microbial processing systems** capable of converting CO_2 emissions from iron and steel manufacturers into valuable industrial products.
- **Production of four chemical building blocks** produced using CO_2 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 CO_2 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 CO_2 re-use technologies.**
- **Improved public perception of CO_2 re-use technologies** through transparent and responsible communication, dissemination, knowledge transfer and exploitation of outcomes of the project.

CONSORTIUM

BIOCON-CO_2 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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