



GLASS, CERAMICS AND
CONSTRUCTION MATERIAL

INNOVATION FUND

Deployment of net-zero and innovative technologies

VITRUM: Virtuous Innovative TRansformation of high-qUality container glass Manufacturing

The Innovation Fund is 100% funded by the EU Emissions Trading System

| Project Factsheet

The VITRUM project will develop an innovative technology based on a hybrid gas and electricity furnace for high-quality glass. This will be combined with a high share of Post-Consumer Recycled (PCR) glass and a more efficient forehearth conditioning system. The project will be developed in the Abbiategrasso plant and will be applied to the high-quality cosmetic container glass production, a sector with a currently low usage of hybrid furnaces and PCR. Among the expected outcomes of the Bormioli Luigi solution is a significant reduction of GHG emissions, with an expected relative emission reduction of 14% compared to the reference scenario.

The most innovative and novel aspect of the VITRUM project is the deployment of the hybrid methane and electricity furnace, coupled with advanced PCR use and distributed digitalisation technologies.

COORDINATOR

BORMIOLI LUIGI SPA

LOCATION

Italy

CATEGORY

Energy intensive industries (EII)

SECTOR

Glass, ceramics construction material

AMOUNT OF INNOVATION FUND GRANT

EUR 4,100,000

EXPECTED GHG EMISSIONS AVOIDANCE

25,597 tonnes CO2 equivalent

STARTING DATE

01 August, 2022

ENTRY INTO OPERATION DATE

31 October, 2024

FINANCIAL CLOSE DATE

30 June, 2023

The project aims to develop energy efficient solutions and the electrification of the process, while guaranteeing a high-quality final product. The melting section of the furnace will be equipped with electrodes which account for up to 30% share of the required heat. GHG emissions reduction and energy efficiency are also achieved due to the increase in PCR input share (up to 23%).

The VITRUM project approach to glass production is able to deliver excellent results in terms of decarbonisation. CO₂ emissions are reduced in different sections of the plant, of which the greatest contribution comes from the hybridization of the furnace, which accounts for about 80% of the total amount during the lifetime of the plant, while the remaining part comes from the use of PCR, since it substitutes energy-intensive materials, and the forehearth conditioning system. In total, the project plans to avoid the emission of about 25 500 tonnes CO₂ equivalent over the first ten years of operation.

The VITRUM project offers well defined scalability

| Participants

BORMIOLI LUIGI SPA

opportunities. At the project and regional level, both the hybridisation and digitalisation can be applied to all glass manufacturers that currently use gas furnaces. Also, an increased PCR share in the feedstock mix is an intervention that can be applied to the other high-quality cosmetic glass producers, the only sector where PCR glass has not been widely used yet, due to quality constraints.

The container glass sector in Europe accounts for 61.7% of the European glass production in 2021 with 164 plants. Electricity is only used as an energy source in 15% of these plants, meaning there is significant potential to scale up the hybridisation of glass furnaces.

Further opportunities exist to increase electrification in all energy-intensive and high-temperatures industries, such as the steel, cement, and ceramic sectors. The engineering of a hybrid solution for high-temperature furnaces is therefore likely to be a key factor for the decarbonisation in these sectors.

Italy