



GLASS, CERAMICS AND CONSTRUCTION MATERIAL

INNOVATION FUND

Deployment of net-zero and innovative technologies

PRIMUS: PRIme Manufacturing of crystal glass Under innovative Solution

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

| Project Factsheet

The PRIMUS project will deliver an innovative combination of crystal glass furnace technologies to improve energy efficiency and reduce GHG emissions. The innovations will include furnace electrification, and an innovative waste heat recovery solution related to the furnace channels, regenerative burners and the exhaust furnace gas. The project will be developed in the Fidenza plant in Italy and will contribute to the decarbonisation of the production of high-quality crystal glass, through the electrical hybridisation and energy efficiency measures. Among the outcomes of the Bormioli Rocco solution is a significant reduction of GHG emissions, with an expected relative emission reduction of about 28% compared to the reference scenario.

The PRIMUS project aims to create a lower

COORDINATOR

BORMIOLI LUIGI SPA

LOCATION

Italy

CATEGORY

Energy Intensive Industries (EEI)

SECTOR

Glass, ceramics construction material

AMOUNT OF INNOVATION FUND GRANT

EUR 4,499,755

EXPECTED GHG EMISSIONS AVOIDANCE

42,332 tonnes CO2 equivalent

STARTING DATE

01 September, 2022

ENTRY INTO OPERATION DATE

01 February, 2024

FINANCIAL CLOSE DATE

31 July, 2023

emission plant capable of producing a large quantity of high-quality crystal glass for the tableware market. This will be achieved using a highly efficient hybrid furnace in combination with an innovative waste heat recovery solution to improve the energy efficiency of the site.

The project will be the first application of hybridisation in this specific sector. Electrodes will be used in the furnace, allowing part of the fuel to be substituted with electricity. This will result in a significant reduction in direct methane consumption, and therefore in a remarkable cut to the emissions of the plant.

GHG reduction is also achieved due to the waste heat recovery system and the use of regenerative burners in the “channel” section of the plant. The ceramic heat regenerators enable the recovery of 85-90% of heat from the waste gases and a fuel consumption reduction of up to 45%. This represents a first-of-a-kind application of this technology in the glass sector, optimising the energy efficiency of combustion.

As well as the regenerative burners, a waste heat recovery system from the exhaust furnace gases will be installed. This will allow a major reduction to the methane consumption in the plant, which is used for the heating and hot water production.

Two of the main pillars of the decarbonisation pathway are efficiency and electrification. Across the whole plant, PRIMUS uses these pillars to cut CO₂ emissions from methane combustion from 6.8 to 2.6 tonnes CO₂equivalent, per year, equating to a 61% reduction. This is a remarkable result for such a hard-to-abate sector. In this way, over the first ten years of operations, the plant will have an absolute GHG reduction of about 42 000 tonnes CO₂ equivalent.

Scalability is embraced by the PRIMUS project at all levels. The hybrid furnaces and the waste heat recovery systems can be replicated in other plant furnaces and in the other regional methane fuelled glass furnaces.

The scalability of the PRIMUS project is also projected to have significant impact on the European crystal glass tableware production sector. It has been evaluated that, over a period of 10 years, the implementation of PRIMUS technologies in the revamping of glass industry furnaces, would result in greenhouse gas emissions savings of up to 8 000 000 tonnes CO₂ equivalent within the sector.

| Beneficiaries

BORMIOLI LUIGI SPA

Italy