

CIRCULARITY

Closing the glass loop across Europe with FEVE

Leading the European container glass industry towards climate neutrality through advanced furnace technologies, FEVE has increased recycled content and supportive EU policies. By combining circularity, innovation and pragmatic regulation, it aims to secure a competitive, low-carbon future for glass packaging across Europe.

OUR INDUSTRY IN NUMBERS

- 162 plants in 23 countries
- 125,000 jobs (40,000 direct)
- ~ 90 billion glass containers yearly
- 98% of the 45,000 EU companies selling products in glass are SMEs
- €140 billion: EU exports packaged in glass
- > €600 million invested annually in energy efficiency, decarbonisation and upgrades
- 75.6% recycling rate (2022)



Source: www.FEVE - Data as of April 2024 - www.fev.org

OUR DECARBONISATION PATHWAYS



Decarbonising the European container glass industry is a central strategic priority for FEVE -The European Container Glass Federation- which represents a sector deeply embedded in Europe’s industrial, economic and social fabric. With 162 container glass plants operating across 23 countries, the

industry provides around 125,000 jobs -40,000 of them directly- and produces close to 90 billion glass containers every year. The sector is characterised by a strong SME base, with 98 percent of the 45,000 EU companies selling products in glass falling into this category.

Glass packaging plays a vital role

across food and beverages, pharmaceuticals and cosmetics and perfumes, supporting European value chains while enabling circular material use. Each year, over EUR 140 billion worth of EU exports are packaged in glass, underlining the material’s strategic relevance. At the same time, the industry is already investing

IN THE GLASS INDUSTRY, THE CO₂ EMISSIONS COME FROM:



The Furnaces of the Future



A vision for net zero glass production

'Close the Glass Loop'



The European ambition to collect glass more and better, together

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WHAT WE NEED TO

- 1 Secure **sufficient availability** of low-carbon energy carriers for container glass plants
- 2 Ensure the **affordability of low-carbon energy carriers** for the container glass industry
- 3 Promote development of **necessary infrastructure** for the transport and distribution of low-carbon energy carriers to container glass plants
- 4 **Take into account investment cycles** for the container glass industry
- 5 Call for increased **support for capital and operational decarbonisation expenditure**

Furnaces of the Future

more than EUR 600M annually in energy efficiency, decarbonisation and plant upgrades, reflecting a long-standing commitment to continuous improvement and environmental performance.

TOWARDS CLIMATE-NEUTRAL CONTAINER GLASS

FEVE has set out clear pathways towards climate-neutral container glass production, structured around five interconnected areas:

furnaces for the future, closing the glass loop, sourcing and design and transport and delivery. At the heart of this transition lies the transformation of melting furnaces, which are responsible for the majority of CO₂ emissions in glass manufacturing. Approximately 80 percent of emissions stem from the combustion of natural gas, while around 20 percent result from process emissions linked to the decomposition of carbonates in virgin raw materials.

To address these emissions,

FEVE identifies electrification, hydrogen and biomass as potential solutions for furnace decarbonisation, alongside increasing the use of recycled glass in the batch. This dual approach combines technological innovation with material efficiency, forming the basis of a long-term vision for net-zero glass production in Europe.

CLOSING THE LOOP

A cornerstone of FEVE's decarbonisation strategy is the ambi-

WHY CLOSING THE GLASS LOOP?

Container glass collection for recycling in Europe

In 2023, in the EU27, on average **80,8%** of glass packaging was collected for recycling

- 1. The EU average is calculated from total tonnes collected for recycling on total tonnes placed on the market in the EU. The data for non-EU countries is for reference only.
- 2. In some cases, the national rates reflect a "recycling rate" and not a "collection for recycling rate".
- 3. Where estimates for 2023 were not available, European 2022 data (Belgium, Croatia, Denmark, Estonia, Hungary, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Slovakia, Slovenia, Sweden) was used.

Source: Close the Glass Loop, 2023 data

Benefits of closed-loop glass recycling

- ✓ Each tonne of recycled glass cuts 580 kg of CO₂ and replaces 1.2 tonnes of raw materials
- ✓ A 10% cullet increase reducing CO₂ emissions by 5% and furnace energy use by 2.5%

Average Recycled content in Europe: 53.55%

close the glass loop
More details on www.closestheglassloop.eu

CLOSE THE GLASS LOOP: MOBILISING AT NATIONAL LEVEL



13
National
Platforms

Close the Glass Loop is a European partnership involving the entire glass packaging collection & recycling value chain

tion to ‘Close the Glass Loop’ - a European-wide effort to collect more glass, and collect it better, together. In 2023, an average of 80.1 percent of glass packaging placed on the market in the EU27 was collected for recycling, while the average recycled content in European container glass reached 53.55 percent.

The climate benefits of closed-loop glass recycling are substantial. Each tonne of recycled glass used in production avoids approximately 580 kg of CO₂ emissions and replaces 1.2 tonnes of virgin raw materials. Moreover, a 10 percent increase in cullet use can reduce CO₂ emissions by 5 percent and lower furnace energy consumption by 2.5 percent. To accelerate these gains, Close the Glass Loop operates as a European partnership spanning the entire glass packaging collection and recycling value chain, with 13 national platforms mobilising action at country level.

POLICY FRAMEWORKS ENABLING DECARBONISATION

FEVE actively engages with

European policy developments that are critical to enabling industrial decarbonisation. The EU Emissions Trading System (ETS), as the flagship EU climate policy, requires all industrial sectors to purchase allowances corresponding to their CO₂ emissions, with the total number of allowances gradually decreasing. Under the current trajectory, allowances would run out by 2039, effectively requiring all sectors to be carbon neutral. FEVE therefore calls for a pragmatic review of the ETS trajectory to reflect industrial realities, alongside enhanced earmarking of ETS revenues for industrial decarbonisation, which currently stands at just 3 percent.

In parallel, FEVE highlights the importance of the EU ETS State Aid Guidelines, which allow Member States to compensate certain sectors for indirect CO₂ costs passed through electricity prices. At present, the container glass sector is not eligible, creating a significant barrier to electrification. FEVE advocates for the inclusion of container glass to support both competitiveness

and decarbonisation, particularly in light of revised CO₂ price assumptions.

Further policy initiatives, such as the forthcoming Industrial Decarbonisation Accelerator Act and the proposed Industrial Decarbonisation Bank -with a budget of up to EUR 100 billion- are seen as key opportunities. FEVE stresses the need for streamlined permitting, faster grid connections, sufficient funding levels and fair access across industrial sectors to ensure that decarbonisation investments can be deployed at scale and in line with industry investment cycles. ■



FEVE

Avenue Louise 89, Bte 4
B-1050 Brussels
BELGIUM
Tel.: +32-2-536-0080
secretariat@feve.org
www.feve.org