ZeroCO2Glas sees STOELZLE and IPGR join forces for sustainability

It's almost two years now that R&D experts at STOELZLE have teamed up with International Partners in Glass Research (IPGR) in a joint commitment to advance the competitiveness of glass within the packaging industry.

EMISSIONS REDUCTION

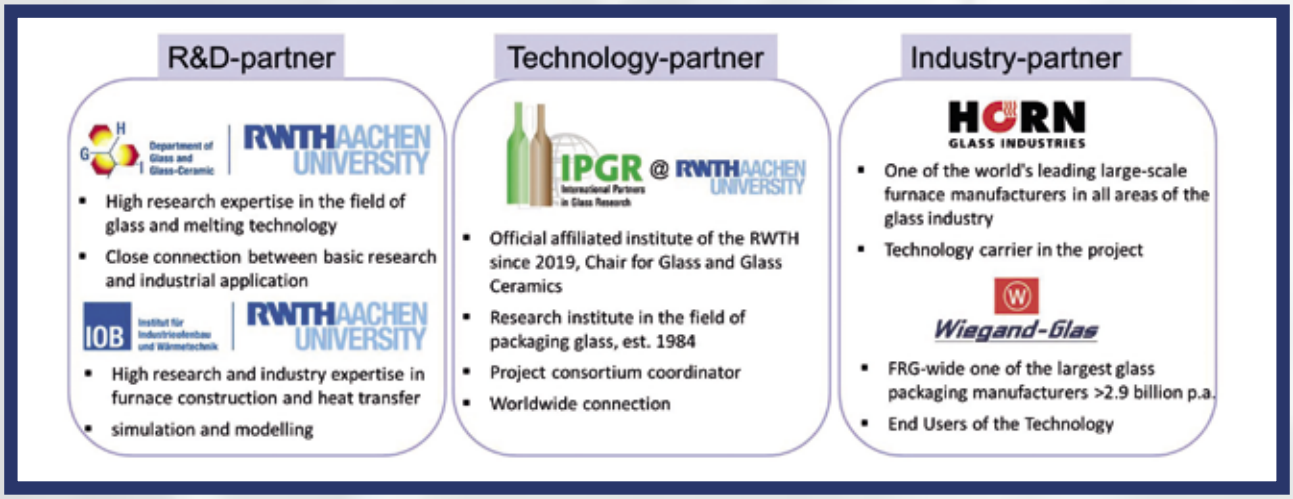
With sustainability being a core value of the company for many years already, it's hardly surprising that significant investments have been made in both technologies and processes which span the whole of production – all to drive eco-friendly solutions that can reach important targets in the field of energy reduction.

ZEROCO2GLAS

Numbered among these achievements is Stoelzle's participation in ZeroCO2Glas with German research association IPGR, which aims by an all-encompassing approach to develop a revolutionary glass melting process that includes the development and set up of a new, CO2-neutral energy-saving furnace through a project funded by the German Ministry for Economy and Climate BMWK to a maximum of EUR 8.38M, for a total project volume of circa EUR 14.94M. Here, besides the role of IPGR as technology partner, other consortium partners include Aachen University for research and development as well as Horn Glass Industries and Wiegand-Glas as industry partners.

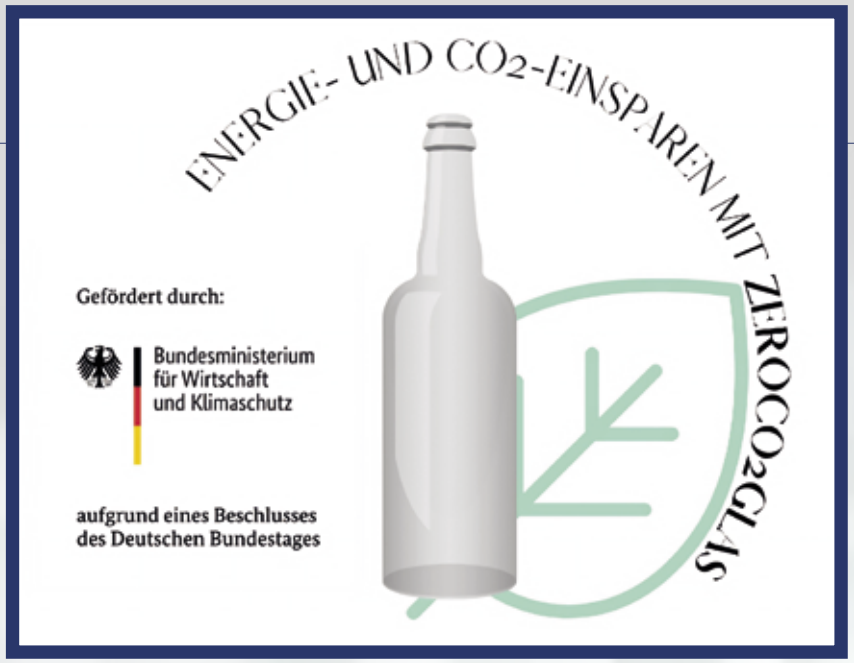
CURRENT SUSTAINABILITY CHALLENGES

With around 4.1 million tonnes of glass per annum, the hollow glass sector produces 53 percent of its glass in Germany -the largest share- of which 98 percent is represented by container glass. It's against this backdrop, and always within a very energy-intensive industry, that up to 85 percent of the requisite energy during manufacture is directly attributable to melting (depending upon glass type and production process). That alone makes the project a noteworthy contributor towards increasing energy efficiency whilst expanding renewable energies and significantly reducing greenhouse



gases - all very relevant at this historic moment given that, by 2050, primary energy consumption should fall by 50 percent compared to 2008. To this we add the share of renewable energies in final energy consumption, which should increase to 60 percent, while greenhouse gas emissions should fall by at least 80 percent compared to 1990.

As things currently stand, batch mixtures brought into furnaces must be heated to a temperature ranging from 1.450°C to 1.650°C before being converted into glass, which is mainly done within large furnaces by natural, gas-fired burners. This shows that glass, glassware, ceramics, processed stone and earth all account for around seven percent of primary energy consumption in the industry.

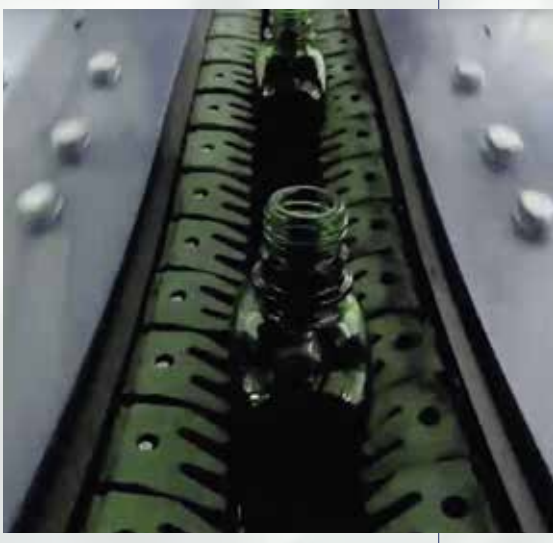


PROJECT AIMS

Returning to ZeroCO2Glas, it's at the second stage of project upscaling -and once all approaches have been tested on a laboratory scale- that set up will go ahead in Aachen, Germany, of the hybrid furnace with hydrogen-oxy and natural gas-oxy firing as well as electrical heating - representing, together with the corresponding peripherals, a fully-fledged container glass site.

This will focus upon the melting process, opening up potential savings of a particularly large amount of energy and greenhouse gases. Indeed, its innovative melting technology aims to reduce energy consumption by 15 percent as compared to conventional furnaces by using alternative, CO2-free raw materials with lower reaction enthalpy that hinders any CO2 release. This avoids unnecessary humidification of the batch and reduces glass dwell time within the furnace - all thanks to this special melting process and improved new furnace design.

Finally, new glass compositions are being tested in the project, which allow advantages in terms of both emissions and finished glass properties. ■



THE STOELZLE GLASS GROUP

Is a family-run company with six plants in Europe and one US production plant which joined IPGR in 2020. The group has been producing high-quality glass packaging for the pharmaceutical, perfumery & cosmetics, spirits, food & beverage sectors for over 200 years. Stoelzle covers all areas from product development to production to decoration and the delivery of closures.

STOELZLE GLASS GROUP

STOELZLE

Fabrikstrasse 11
8580 Köflach - Austria
Tel.: +43-3144-706
Fax: +43-3144-706251
E-mail: office@stoelzle.com
www.stoelzle.com