GLASSTREND puts sustainability first, courtesy of STARA GLASS

SETTING THE FRAMEWORK FOR DECARBONISATION

The 2025 GlassTrend Autumn Meeting on Smart & Sustainable Glass Manufacturing was held in Genoa, Italy, on 12-13 November and hosted by Stara Glass within the framework of GlassTrend, the global consortium bringing together glass manufacturers, suppliers and research institutes to advance glass science, technology transfer and industrial sustainability.

Opening the technical programme, Ernesto Cattaneo of Stara Glass presented the company's decarbonisation roadmap, outlining current technology developments and innovation projects. He emphasised that meeting EU climate objectives will require coordinated progress across four strategic pillars: energy efficiency, hydrogen combustion, carbon capture and renewable electrification.

Yujin Ziegler of Siemens followed with a presentation on smart data integration and AI-driven use cases in glass manufacturing. She illustrated how the convergence of digital and physical systems can accelerate both sustainability and digital transformation by translating industrial data into actionable insights through advanced analytics and artificial intelligence.

CONTROLLING EMISSIONS THROUGH PROCESS INNOVATION

Long-term emissions mitigation was the focus of Galen Kutlubay from Topsoe, who shared performance data from catalytic ceramic filters after 11 years of operation. His contribution demonstrated the durability of de-NOx catalytic activity while introducing the development of next-generation filter technologies.

Terutaka Maehara of AGC then explored the influence of water vapour in the melting atmosphere on glass production, comparing methane, hydrogen and ammonia combustion. His analysis showed how fuel selection alters flue-gas composition, with direct effects on melting behaviour and final glass quality.

HYDROGEN, CARBON CAPTURE AND SYSTEM INTEGRATION

Industrial-scale hydrogen implementation was addressed by Simone Tiozzo from SSV, who introduced the H2GLASS Horizon Europe project. He reported on the first large-scale hydrogen combustion trials conducted in oxy-fuel furnaces at

Gathering industry leaders in Genoa, last year's GLASS TREND Autumn Meeting hosted by STARA GLASS examined smart, sustainable glass manufacturing through advanced furnace design, hydrogen combustion, carbon capture, AI-driven operations and emerging zero-emission pathways - highlighting collaborative innovation across research institutes, suppliers and manufacturers.

Steklarna Hrastnik and Owens Corning, representing a key milestone toward broader hydrogen adoption in glass melting.

Taking a systems-level perspective, Chiara Caccamo of SINTEF presented the Glass Industry Emission Reduction Alliances developed within the COREu project. These alliances link industry, researchers, policymakers and CCS stakeholders, with Stara Glass coordinating the alliance dedicated specifically to the glass sector.

Alessandro Monteforte from K2CO2 reviewed CO_2 capture solutions based on hot potassium carbonate for glass furnaces, comparing this approach with alternative decarbonisation pathways. His assessment covered technological readiness, integration with air pollution control systems, applicability across furnace types and associated CAPEX and OPEX considerations.

MATERIALS, MARKETS AND THE PATH FORWARD

Technological transition in specialty glass production was discussed by Moritz Hauf of Schott, who outlined strategies and advances in sustainable melting technologies designed for high-performance glass applications.

Returning to applied innovation, Giorgio Minestrini of Stara Glass shared progress on the LIFE SUGAR project, including an upcoming pilot installation at Vetrerie Meridionali Furnace 3, which already hosts the Second Centauro furnace. The non-full-scale pilot aims to demonstrate an optimised melting system capable of reducing energy consumption by approximately 15 percent.

Raw-material-related emissions were addressed by Hans-Ullrich Werner from Metaliq, who introduced the Decarbonisation to Zero concept. By enabling on-site soda ash production and converting CO_2 into a usable raw material through carbon capture and utilisation, the approach offers a potential route to zero

GLASSTREND

GlassTrend is a global consortium of glass manufacturers, suppliers and research institutes - all focused on advancing glass science and technology. It coordinates R&D projects, knowledge transfer and innovation to improve production efficiency, quality and sustainability. The organisation also offers seminars, workshops and networking opportunities to share expertise and address industry challenges.

CO_2 emissions when combined with electric melting, while also improving cost efficiency.

Market-based flexibility was explored by Laura Darvey of Energy Pool, who showed how glass container manufacturers can generate additional revenue through participation in electricity balancing markets, contributing simultaneously to profitability and grid stability.

The programme concluded with a focus on materials innovation. Sophie Franchitto of Heraeus Precious Metals presented advances in platinum alloys designed to enhance durability, reduce precious-metal consumption and improve environmental performance. Sindy Fuhrmann of TU Bergakademie Freiberg followed with research into zero-emission melting concepts, including hydroxide batch melting and hybrid microwave technologies.

Bringing together around 90 engineers, researchers, academics, industry representatives and technology providers, the meeting enabled in-depth technical exchange and collaboration. Dedicated networking opportunities, including a convivial dinner sponsored by the COREu project, reinforced a shared commitment to shaping the future of smart and sustainable glass manufacturing.

STARA GLASS

Stara Glass is an Italian company specialising in advanced glass furnace design and focusing on energy efficiency and performance. It combines decades of operational experience with precision software tools to optimise furnace operation and reduce environmental impact. Committed to innovation and sustainability, Stara Glass delivers tailored design, diagnostics and support across the entire furnace lifecycle.

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