

Press Release October, 19th 2020

VERCANE, the first R&D program aiming at glassmaking process decarbonization

The consortium formed by ENGIE, Fives, Saverglass and Verescence has launched its R&D program called «VERCANE: fusion de VERre CArboNEutre (carbon neutral glass melting). The purpose of this ambitious program is to support the industrial glass sector in its efforts to decarbonize glass production by evaluating energy sources for a sustainable industrial process.

An answer to the challenges of the decarbonization of the industry, compliant with "France Relance" recovery plan.

The glassmaking sector, one of the flagships of the French industry, is facing the challenge of carbon neutrality. CO_2 emissions in this sector are mainly produced by the glass melting process, accounting for 70-80% of the total emissions of a production site, in the sector which has more than 80 furnaces spread over 50 sites in France. Fully in line with objectives of the 2050 low-carbon strategy plan for the French industry, VERCANE aims to develop sustainable scenarios of energy transition by designing solutions based on decarbonised energy sources.

For this purpose, VERCANE studies different carbon neutral energy systems that could be compatible with the glass melting process: hydrogen, bioresources and process electrification. On the other hand, VERCANE explores possibilities to adapt existing melting furnaces to new energy sources.

A first phase of 18 months, part of an ambitious program.

Targeting viability and sustainability, the first phase of the project takes also into account available territorial and local resources and transport solutions to the production site.

The project will ultimately include concrete case studies at production sites of Saverglass and Verescence in view of preparing the deployment of large-scale industrial demonstrators.

The role of the four VERCANE project partners :

- ENGIE, through its ENGIE Lab CRIGEN Research Center and ENGIE Solutions, energy partner, is in charge of project coordination, energy vectors analysis, numerical simulation studies and will ensure the prospective vision of the energy context.
- Saverglass and Verescence, industrial partners, bring to the project real case studies on their industrial sites, and will contribute to the realization of technical work packages involving their know-how of glass production in melting furnaces.
- Fives, technological partner, is in charge of analyzing the challenges related to the technological retrofit of furnaces to new carbon-free energy sources and will provide its know-how in the design and implementation of these processes.

About ENGIE

Our group is a global reference in low-carbon energy and services. Our purpose ("raison d'être") is to act to accelerate the transition towards a carbon-neutral world, through reduced energy consumption and more environmentally-friendly solutions, reconciling economic performance with a positive impact on people and the planet. We rely on our key businesses (gas, renewable energy, services) to offer competitive solutions to our customers. With our 170,000 employees, our customers, partners and stakeholders, we are a community of Imaginative Builders, committed every day to more harmonious progress.

Turnover in 2019: 60.1 billion Euros. The Group is listed on the Paris and Brussels stock exchanges (ENGI) and is represented in the main financial indices (CAC 40, DJ Euro Stoxx 50, Euronext 100, FTSE Eurotop 100, MSCI Europe) and non-financial indices (DJSI World, DJSI Europe and Euronext Vigeo Eiris - World 120, Eurozone 120, Europe 120, France 20, CAC 40 Governance).

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About Saverglass

The SAVERGLASS Group designs, manufactures and decorates luxury glass bottles for high-end spirits, fine sparkling and still wine brands around the world.

With an annual sales revenue of US\$580M in 2019, of which more than 50% is generated outside of its home country (France), SAVERGLASS is the world leader of super-premium bottles & decanters. Renowned for the mastery of its know-how, the quality of its products and the originality of its designs, and in line with a long tradition of French glassmaking, the Group has built its reputation throughout the world from its capacity for innovation, a core component of its corporate culture. A permanent quest for quality, resulting in the excellence of its products, is associated with a long-term action plan aimed at strengthening the Group's commitment to environmental conservation and the social and societal challenges of our planet.

SAVERGLASS manufactures 650 million bottles per year in 6 glass plants on 3 continents (Europe, North America and the Middle East), and decorates over 200 million bottles in 4 decoration plants.

Some additional information about the Group:

- 3,600 employees worldwide
- 500,000 tons of glass produced / year
- 17 subsidiaries worldwide
- Products are sold in 100 countries

En savoir plus sur Saverglass : <u>www.saverglass.com</u>

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About Verescence

Verescence is the global leader in glass bottle manufacturing for the Perfumery and Cosmetics industry and has a production capacity of 500 million bottles per year. Verescence supplies its customers with glass through high quality, environmentally friendly and innovative solutions. The company has over 120 years of glass expertise and a unique geographical footprint (3 glass production sites and 4 decorations sites, three of which are in France), making it the partner of choice for the world's largest beauty market players. Verescence, a world reference in the sustainable beauty market, continuously optimizes the environmental impact of its processes by controlling the consumption of energy, water, raw materials. In 2019, the company employed 2,300 people worldwide and achieved sales revenue of 309 million euros.

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About Fives

As an industrial engineering Group with a heritage of over 200 years, Fives designs and supplies machines, process equipment and production lines for the world's largest industrial players in various sectors such as steel, aerospace and special machining, aluminium, automotive and manufacturing industries, cement, energy, logistics and glass.

The effectiveness of its R&D programs enables Fives to design forward-thinking solutions that anticipate industrials' needs in terms of profitability, performance, quality, safety and respect for the environment.

In 2019, Fives achieved a turnover of €1.99 billion and employed more than 8,400 people in about thirty countries.

In the glass industry, Fives designs, manufactures, installs and commissions process equipment for a variety of applications. Its technologies strive to achieve low energy consumption, emissions reduction, superior glass quality and investment cost optimization.

www.fivesgroup.com

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