Biogas helps decarbonise Brazilian glass industry

Wheaton Brasil has invested in biogas as an energy source for production at its industrial park in São Paulo. Renato Massara Júnior* discusses the project.

Pic 1. Wheaton's industrial park in São Bernardo do Campo, São Paulo, Brazil.

Sustainability, innovation and technology are among the pillars of Wheaton and its longstanding customers. The company is one of the largest manufacturers of glass packaging for the perfumery and cosmetics segment globally.

Wheaton decided to incorporate biomethane into production, as an energy source, to replace part of the natural gas used.

The company is one of the first in the glass industry to use biogas. The fuel is currently used throughout Wheaton's industrial park in São Bernardo do Campo, São Paulo, Brazil (***Pic 1***).

According to the manufacturer's estimates, using biogas will reduce its annual CO_2 emissions linked to the production of glass by approximately 7,000 tonnes. This is equivalent to more than 50,000 trees planted in a period of 20 years.

Investment

Wheaton's Brazilian plant uses 10% biomethane as an energy source (***Pic 2***), from the production furnaces to decoration ovens and annealing furnaces.

The company currently operates four continuous furnaces with a production capacity of one billion bottles per year, or 370 tons of glass per day (***Pic 3***).

In all, there are 24 production lines, including IS machines, in the blown-blown and pressed-blown processes, and rotary presses, in the pressed process.

'GasBio', the name of the renewable product supplied, is produced through the sustainable reuse of urban waste in a sanitary landfill located in Sapopemba, a district in the East Zone of São Paulo.

In order for the renewable fuel to be injected into the ovens, the glass manufacturer had to adapt the gas burners. In total, the investments were R$ 2 million (US $365,000).

The company said that the transition to biomethane would not affect glass quality.

ZEG partnership

The partnership between Wheaton and ZEG, a company specialised in the production of renewable energy, ensures the supply of up to 10,500m² of renewable energy per day, at a cost similar to that of natural gas distributed in São Paulo.

The company will have the advantage of obtaining a fuel produced, compressed, and distributed by road at a distance of less than 40km from its place of use, enabling the circular economy and the distributed generation of energy.

Other sustainable initiatives

It is within Wheaton's mission to develop and implement practices based on social and environmental responsibility. In this context, it highlights the production of glass packaging that uses post-consumer recycled glass. There are more than 276 tons of flint glass, plus more than 1000 tons of amber glass that Wheaton removes from the environment every month.

In addition, all the internal cullet, originating from the production process itself, is also reused to produce new packaging, reducing the withdrawal of

Pic 2. Biomethane storage tanks at the glass production site.

raw materials from nature.

As part of its commitment to the conscious use of natural resources, it has the Green Light Project, adopting the lighting system through photovoltaic (PV) panels. The project consists of the installation of poles for public lighting that use solar panels to convert the sun's energy into electrical energy.

In this model, solar energy is stored in a battery bank with the purpose of feeding the poles during the night - thus reducing the consumption of conventional electrical energy through the use of a natural and abundant source: the sun.

In addition, the painting process for Wheaton glass packaging is carried out through the use of paint booths with 'water curtains' technology, which capture the paint particles dispersed in the process.

The effluent generated is sent to the Effluent Treatment Station – ETE, where the physicochemical process for treating the effluent is carried out.

The water treated at the ETE returns to the painting process, and is reused in the water curtains of the painting booths. It is also used for washing machines and equipment, and is reused in washbasins and bathrooms, thus reducing the consumption of clean water.

Future

Wheaton is committed to quality, complying with global standards for technology, best corporate practices and the rational use of raw materials and natural resources. It is always looking for new sustainable alternatives.

Brazil still relies heavily on non-renewable and mainly fossil fuels, such as natural gas, which is the portion of oil in the gaseous phase.

Although the glass packaging is 100% recyclable and reused endlessly, natural gas is still consumed in its production. Replacing natural gas with biomethane makes glass an even more sustainable product.

Therefore, Wheaton is proud that it is one of the first companies in the glass industry to use biogas.

It believes that biogas will soon also become more economically advantageous, helping to increase the competitiveness of Brazilian glass in the global market. ■

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Pic 3. Manufacturing at Wheaton's São Paulo site.