

Factory of the Future

Demonstration of the production of wood panels with near zero environmental footprint



A challenge facing companies and consumers around the world is how to reduce their consumption of water and energy to become more sustainable. This is a major priority in Europe, as the European Union has committed to reducing its emissions, raising the share of energy consumption from renewable resources and improving energy efficiency by 20% before 2020. One company leading the way in this area is Kronospan, an international producer of wood panel products.

Inspiration

Kronospan Luxembourg has a factory in Sanem, Luxembourg, that primarily produces medium and high density fibreboard (MDF/HDF) and oriented strand board (OSB). The company has made considerable efforts to reduce its environmental impact with the goal of achieving an autonomous factory with near-zero environmental footprint. The Factory of the Future project was launched in order to take a big step towards this goal and to show that it was possible.

LIST Innovation

Running from June 2012 to October 2015, the goal of Factory of the Future is to optimise Kronospan's wood panel production plant while demonstrating that a company's environmental footprint can be greatly reduced while maintaining production quality and volume in an economically viable way.

Factory of the Future specifically aims to:

- reduce the amount of fossil fuels used for thermal power generation by 90% by using wood by-products from panel production for energy production
- reduce potable water consumption by 70-75% by collecting and storing rain water, capturing and recycling water from the production process, and reducing wastage
- reduce CO₂ emissions from fossil fuel use by 80% by optimising processes and equipment, reducing production wastage, and improve overall energy efficiency
- evaluate and communicate on improvements made and identify further opportunities through Life Cycle Assessment and calculation of the carbon footprint of wood panel production and of the production site

Researchers from LIST will provide a cradle-to-grave Life Cycle Assessment of the products, and calculate the annual carbon footprint of the site and production processes. By project end, all water and energy optimisation will be implemented.

Impact

Factory of the Future will allow Kronospan Luxembourg to implement energy-efficient technology and processes to achieve its goal of having near-zero CO₂ emissions originating from fossil fuels. It will provide a positive model for other companies in the European wood board industry as well as other production sectors to follow in order to make their own factories more sustainable. The project's efforts will have a positive economic benefit for the company and a strong environmental benefit for Luxembourg, as it will result in less water and energy consumption as well as less deforestation in the region. With the factory, Kronospan hopes to achieve an annual reduction in use of natural gas equal to the household use of 4% of the population of Luxembourg, and through the eventual installation of cogeneration equipment (combined heat and power), to provide electricity for 4% of the population of Luxembourg.

Partners

Kronospan Luxembourg (LU)

Financial Support

Life+

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