

London, December 12, 2022

## New sustainable technology for carbon capture and utilization now market ready

- **Inauguration ceremony for Steelanol – a solution that captures carbon-rich waste-gases from ironmaking and steelmaking processes and transforms them into ethanol**
- **Joint EU-funded decarbonization project between Primetals Technologies, LanzaTech, ArcelorMittal, and E4tech**

On December 8, ArcelorMittal hosted an inauguration ceremony together with LanzaTech, E4tech, and Primetals Technologies for the Steelanol plant located nearby ArcelorMittal's steel plant in Ghent, Belgium. In 2014, the four stakeholders partnered to develop the Steelanol plant, and it is now fully operational.

### **Transforming emissions**

The Steelanol plant uses the off-gas from the steel plant's blast furnaces to produce ethanol, which then can be used in, for example, sustainable aviation fuel, packaging, and textile production as well as perfumes and household cleaning products. Every ton of ethanol produced at the Steelanol plant will reduce CO<sub>2</sub> emissions by 2.3 tons. Primetals Technologies is responsible for engineering and implementing the automation solution, and will provide advisory services for process design and commissioning.

For the inauguration ceremony about 800 people came together at the Steelanol plant. Lakshmi Mittal, Executive Chairman at ArcelorMittal used the occasion to speak about the need for a transition to green technologies in the industry sector.

### **Economic benefits**

Thanks to LanzaTech's technology, steel producers can prevent emissions and reuse the carbon from the steel making process to make new products, entering markets beyond steel. The market for recycled carbon products is anticipated to grow quickly over the coming years. Under normal market conditions, this type of plant will pay for itself within a three to five year period and deliver significant return on investment.

## Strong together

Headquartered in Chicago, U.S.A., LanzaTech has developed and owns the rights to the technology used at the Steelanol plant. E4tech provides the full Life Cycle Assessment (LCA) methodology, based on data from the plant in Ghent, which will provide insights into the environmental performance of this type of ethanol. One of the world's leading steel producers, ArcelorMittal is the project owner, investor, and coordinator of the project. ArcelorMittal will also operate and maintain the Steelanol plant in Ghent. The market leader in environmental innovations for the metals industry, Primetals Technologies provides both high engineering competence as well as advisory services for the process design and implementation.

For the construction and startup phases, the Steelanol project has received significant funding from the European Union's Horizon 2020 research and innovation program.

### Key facts: How ethanol is produced at the Steelanol plant

The concept is a unique fermentation solution that converts previously captured carbon into ethanol, which then is further refined to produce sustainable aviation fuel or other intermediate products for the chemical, textile, or consumer goods industries.

- **Step 1:** Waste gas is sent to a compressor unit that increases the pressure to levels required by the bioreactor.
- **Step 2:** Toxic components are removed.
- **Step 3:** The gas is sent to the bioreactor. Here, microbes use carbon monoxide to produce ethanol and other intermediate products.
- **Step 4:** The broth is distilled to reach the required quality.
- **Step 5:** Ethanol and the other intermediate products are stored before being transported to end-users, while the by-products – e.g. water – are cleaned and reused; Steelanol is a zero-waste technology.



The inauguration ceremony took place on December 08 at the steel plant in Ghent, Belgium. From left to right: Manfred Van Vlierberghe, CEO at ArcelorMittal Belgium, Dr. Alexander Fleischanderl, Senior Vice President and Head of Green Steel at Primetals Technologies, Jennifer Holmgren, CEO at LanzaTech, Dr. Etsuro Hirai, CTO, and Karl Purkarthofer, Head of Metallurgical Services, both with Primetals Technologies. Copyright: Bevas-Styn.be



The Steelanol plant is located in Ghent, close to ArcelorMittal's integrated steel plant. The orange pipes in the photo lead directly to the plant.

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steel production chain—from the raw materials to the finished product—and includes the latest rolling solutions for the nonferrous metals sector. Primetals Technologies is a joint venture of Mitsubishi Heavy Industries and partners, with around 7,000 employees worldwide. To learn more about Primetals Technologies, visit the company website [www.primetals.com](http://www.primetals.com).