

Press information

Germany's largest lime producer intends to supply carbon-neutral lime

Green lime from Wülfrath for green steel in Duisburg

- Europe's largest lime plant at the Wülfrath site is to become carbon-neutral.
- Lhoist and Air Liquide are working on a large-scale industrial CO₂ capture plant.
- Green lime to boost thyssenkrupp Steel's transformation.
- State Minister for Economics, Industry, Climate Protection and Energy Mona Neubaur is supporting the carbon-neutral transformation of industry.

Wülfrath, February 15, 2023. Within just a few years, lime manufacturer Lhoist Germany aims to avoid generating about one million metric tons of CO₂, as a means of boosting the production of green steel with carbon-neutral lime. Together with the industrial gases company Air Liquide, Lhoist is working on a plan for a large-scale industrial plant to capture the CO₂ generated during lime production. For thyssenkrupp Steel, green lime is another important building block in the transformation of Europe's biggest steel location in Duisburg. Today, the three companies presented the project to North Rhine-Westphalia's State Minister for Economics, Industry, Climate Protection and Energy Mona Neubaur in Wülfrath.

Carbon-neutral lime as a basic material for steel production

Thomas Perterer, Managing Director of Lhoist Germany, said: "I am delighted that we are working closely with our partners Air Liquide and thyssenkrupp Steel to drive forward the transformation of the Duisburg steel location. We can only succeed in this if representatives of industry, politics and society join forces. Because, just like with hydrogen, we need to create a CO₂ infrastructure, and develop solutions for unavoidable emissions. In this way, we can secure the future of North Rhine-Westphalia as an industrial location for generations to come."

Lime is needed in numerous industrial value chains. In steelmaking, lime products are indispensable for removing troublesome by-elements from the hot metal and binding them in the converter slag that is derived from the lime. Manufacturing green steel thus requires green lime. This represents a particular challenge, because lime production generates unavoidable CO₂ emissions. In the future, these emissions are to be captured and industrially recycled or stored.

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Dr. Arnd Köfler, Chief Technology Officer at thyssenkrupp Steel: "We are laying a milestone for directly avoiding 3.5 million metric tons of CO₂ by building our first hydrogen-based DR plant. And the decarbonization of the entire steel supply chain is also making progress. The project here at Europe's largest lime manufacturing location is a perfect example of this. I am pleased that, in Lhoist, we have a supplier in a long-standing partnership who will lead the way with this ambitious effort, and support the transformation."

Establishing a CO₂ infrastructure in parallel with hydrogen as an energy carrier

It was only recently that thyssenkrupp Steel and Air Liquide announced the completion of the first pipeline to supply Germany's largest steel mill with hydrogen from renewable energies. However, further decarbonization of the industry will also require a viable CO₂ infrastructure to be developed in parallel, observed Gilles Le Van, Vice President Large Industries and Energy Transition for Air Liquide Central Europe: "Unavoidable CO₂ emissions from lime manufacture can be captured with our technology, and then safely transported, reused or stored. To achieve this, however, we need to start building a CO₂ infrastructure today. The more decisive steps we take now, the faster we will achieve effective climate change mitigation in industry."

North Rhine-Westphalia's state government is supporting industry's conversion to carbon neutrality

Climate change mitigation in industry is a core issue for Mona Neubaur, the State Minister of North Rhine-Westphalia for Economics, Industry, Climate Protection and Energy. It was only recently in December that the minister, as a representative of the state government of North Rhine-Westphalia, concluded the "Industrial Pact for Climate Neutrality and Competitiveness" with around 20 industrial companies and 11 sector and technology associations, including Lhoist. The minister's visit to Europe's largest lime plant in Wülfrath-Flandersbach therefore focused on the question of how to make the industrial transformation to carbon neutrality work in practice.

State Minister for Economics Mona Neubaur: "The lime industry is one of the few sectors with unavoidable CO₂ emissions but products that will remain indispensable in the future – and not just in the steel industry. Lime is ubiquitous not only in industry but also in the spheres of agriculture and environmental protection, and is virtually irreplaceable. Against this background, I am all the more delighted that three major companies based in North



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Rhine-Westphalia are rising to meet this challenge together. The cross-sectoral cohesion of industry in North Rhine-Westphalia is exemplary as we proceed to a carbon-neutral future."

About Lhoist Germany

Lhoist Germany (LGE) is the German subsidiary of the Lhoist Group, a global lime and limestone producer headquartered in Belgium. Rheinkalk GmbH, with its 12 sites and 1300 employees in Germany, has been owned by Lhoist Germany since 1999. Lhoist Germany takes its responsibility towards people and nature seriously. It combines centuries of experience with profound expertise as one of founding companies in dealing with limestone through state-of-the-art quarrying, production and recultivation technology. The products are used in iron and steel production, environmental applications, the chemical industry, construction, water and wastewater treatment as well as in agriculture and forestry.

About Air Liquide in Germany

Around 3,750 employees work for companies of the Air Liquide Group in Germany. Air Liquide serves 100,000 customers and stands by more than 200,000 HomeHealthcare patients. One in every two German hospitals purchases medical oxygen from Air Liquide. The company supplies technical and medical gases such as oxygen, nitrogen and hydrogen to numerous industries, including aviation, automotive, food and beverages, chemicals, electronics and energy, as well as the healthcare sector.

About thyssenkrupp Steel Europe

thyssenkrupp Steel Europe AG is Germany's biggest steel manufacturer. The Duisburg-based company with around 26,000 employees is one of the world's leading suppliers of high-quality steel products for innovative and demanding applications, as well as for providing steel-related services. Steel production at thyssenkrupp Steel Europe is planned to be completely climate-neutral by 2045 at the latest. The decisive step in this direction will be the construction of hydrogen-based direct reduction plants in conjunction with innovative melting units. The first plant is scheduled to go on stream in Duisburg in 2026. Production of five million metric tons of low-CO2 steel is already planned for 2030.

Caption

Gilles Le Van (Air Liquide), Thomas Perterer (Lhoist), State Minister of North Rhine-Westphalia for Economics, Industry, Climate Protection and Energy Mona Neubaur, and Dr. Arnd Köfler (thyssenkrupp Steel) in front of the kilns at Europe's biggest lime plant in Wülfrath (from left).

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