

20 June 2024

Groundbreaking ceremony for the world's first large-scale carbon capture and utilisation facility in the cement industry

- **CO₂ as raw material: Heidelberg Materials and Linde are building the world's first large-scale CCU (Carbon Capture and Utilisation) facility in a cement plant**
- **The joint venture "Capture-to-Use" (CAP2U), which was established for the construction and operation of a carbon capture and liquefaction plant, is celebrating an important project milestone with a groundbreaking ceremony**
- **The plant is being built at Heidelberg Materials' Lengfurt cement plant and is scheduled to go into operation in 2025 with a capture capacity of 70,000 tonnes of CO₂ per year**
- **Due to its purity, the processed gas will be suitable for use in both the food and chemical industries**

On 19 June 2024, Linde and Heidelberg Materials hosted a groundbreaking ceremony for their large-scale carbon capture and liquefaction plant in Lengfurt, Germany. Christian Knell, General Manager of Heidelberg Materials Germany, and Andreas X. Müller, Managing Director of Linde Gas Germany, welcomed around 50 guests to this milestone event on the construction site at the Lengfurt cement plant.

Christian Knell said: "With the amine scrubbing technology applied here in Lengfurt, we are demonstrating the capture and utilisation of CO₂ on an industrial scale for the first time in the cement industry in Germany. What makes our pioneering project special is that the captured CO₂ from cement production is processed in such a way that it can be reused in the food industry. We are determined to reduce the carbon footprint of our sites and products to the greatest extent possible and are therefore delighted to collaborate with our joint venture in realising this CCU project in Germany."

"Thanks to our expertise along the entire CO₂ value chain, we support our customers across hard-to-abate sectors in their decarbonisation efforts," says Andreas X Mueller. "Our collaboration with Heidelberg Materials and the execution of the project in Lengfurt mark a significant milestone on the path to reducing greenhouse gas emissions in the cement industry. In addition, with this plant we can expand our offering and provide our customers with a secure and high-quality supply of CO₂." Under the name "Capture-to-Use" (CAP2U), Heidelberg Materials and Linde have established a joint venture to build and operate a carbon capture and liquefaction plant, which is expected to go into

operation in 2025. The plant will enable the captured CO₂ from cement production to be utilised as a valuable raw material for industrial applications. Due to its purity, the processed gas will be suitable for use in both the food and chemical industries. The planned volume of purified and liquefied CO₂ is around 70,000 tonnes per year.

The plant is being designed and built by Linde Engineering. Based on an amine scrubbing system specially developed for flue gases, the CO₂ will be separated directly from part of the exhaust gas stream from the cement clinker kiln. Equipment for purification and liquefaction, tanks for intermediate storage of the product, and loading facilities are also part of the project scope.

For the implementation of the project at the cement plant in Lengfurt, contributions of the joint venture will be supplemented by funding of around €15 million from the 'Decarbonisation of Industry' funding programme on behalf of the German Federal Ministry for Economic Affairs and Climate Action (BMWK).



Caption: Groundbreaking ceremony for the world's first large-scale carbon capture and utilisation facility in the cement industry at Heidelberg Materials' Lengfurt plant – from left to right: Mladen Pasalic, Managing Director Joint Venture Cap2U, Dr Beate Baron, Federal Ministry for Economic Affairs and Climate Action, State Secretary Sandro Kirchner, MdL, Andreas X. Müller, Managing Director of Linde Gas Germany, Christian Knell, General Manager of Heidelberg Materials Germany, Mayor Kerstin Deckenbrock, District Administrator Sabine Sitter, Dr Thomas Tork, Managing Director Joint Venture Cap2U and Plant Manager Michael Becker, Heidelberg Materials.

Credits: Claus Uhlendorf

About Heidelberg Materials

Heidelberg Materials is one of the world's largest integrated manufacturers of building materials and solutions with leading market positions in cement, aggregates, and ready-mixed concrete. We are represented in around 50 countries with around 51,000 employees at almost 3,000 locations. At the centre of our actions lies the responsibility for the environment. As the front runner on the path to carbon neutrality and circular economy in the building materials industry, we are working on sustainable building materials and solutions for the future. We enable new opportunities for our customers through digitalisation.

About Linde

Linde is a leading global industrial gases and engineering company with 2023 sales of \$33 billion. We live our mission of making our world more productive every day by providing high-quality solutions, technologies and services which are making our customers more successful and helping to sustain, decarbonize and protect our planet.

The company serves a variety of end markets such as chemicals & energy, food & beverage, electronics, healthcare, manufacturing, metals and mining. Linde's industrial gases and technologies are used in countless applications including production of clean hydrogen and carbon capture systems critical to the energy transition, life-saving medical oxygen and high-purity & specialty gases for electronics. Linde also delivers state-of-the-art gas processing solutions to support customer expansion, efficiency improvements and emissions reductions.

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