



thyssenkrupp

Insights _ Polysius



"catch4climate" research project: major progress in the construction of the CO₂ capture plant

Mergelstetten - The furnace was installed on the construction site of the "catch4climate" CO₂ capture project in March. The plant, for the construction and operation of which over 120 million euros will be

invested, is the first to use the polysius® pure oxyfuel process developed by thyssenkrupp Polysius for CO2 capture. The oxyfuel furnace plant is expected to be commissioned in the first quarter of 2025.

The four European cement manufacturers Buzzi SpA- Dyckerhoff GmbH, Heidelberg Materials AG, SCHWENK Zement GmbH & Co. KG and Vicat S.A. joined forces in 2019 to form the research company CI4C GmbH & Co. KG in order to jointly realize the "catch4climate" CO2 capture project on the site of SCHWENK's cement plant in Mergelstetten. The plant, for the construction and operation of which over 120 million euros are being invested, is the first to use the so-called pure oxyfuel process for CO2 capture. A separate rotary kiln line with a clinker production capacity of 450 tons per day will be built for this purpose, which will be used exclusively for research and development.

The Pure Oxyfuel process was designed by thyssenkrupp Polysius. Hoffmeier in Hamm was commissioned with the manufacture of the furnace tube, the assembly of the kiln rings, the furnace inlet/outlet segments and the gear ring. The CO2 purification unit (CPU) is being built by Linde Engineering and the oxygen supply (LOX = Liquified Oxygen Plant) is being provided by Westfalen AG.

The exciting oven journey

In December 2023, the rotary kiln was transported by barge along the river from Hamm-Uentrop to Heilbronn-Hafen, where it was initially stored temporarily until the construction work on site for kiln assembly was completed. The rest of the journey to Mergelstetten was then carried out by heavy goods vehicle during the night so as not to obstruct traffic. Due to its compact dimensions, the kiln is the first that Polysius has transported in one piece, including the race and gear ring, and placed on the kiln foundations in one lift. In addition to working out the transportation concepts, all the assembly processes on the construction site were planned in such detail in advance that the rotary kiln could be placed in one lift without delay. A 700-tonne crane was used to lift the furnace into place on 7 March 2024.



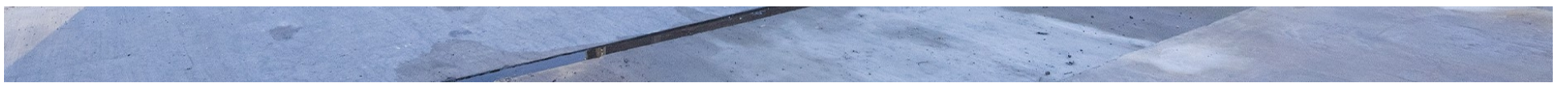


Photo: Amin Buhl

The bottom line: The oxyfuel furnace plant is expected to be commissioned in the first quarter of 2025. After commissioning, a period of approximately three years is planned to work on the research and development results, if the progress of the results so requires.
