



thyssenkrupp

Insights_Polysius



thyssenkrupp cooperates with Heidelberg Materials for the GeZero carbon capture project

Heidelberg Materials and thyssenkrupp Polysius have signed a front-end engineering design contract for the plant design of the clinker production line of the GeZero CCS project. The GeZero project in Geseke will be one of the first European cement plants capable of producing Net-Zero cement and clinker on a CCS (Carbon Capture and Storage) basis. The planning includes a potential capture capacity of around 2,000 tons per day,

including the polysius® pure oxyfuel process.

- thyssenkrupp Polysius has been commissioned with the technical planning of the new furnace line.
- The GeZero project aims to establish a complete CCS value chain for the Geseke site in North Rhine-Westphalia and capture 700,000 tons of CO₂ per year from 2029.

The basic principle of the pure oxyfuel technology developed by thyssenkrupp Polysius is to separate CO₂, which is produced in a kiln system, from the exhaust gases of cement plants and prevent it from being released into the atmosphere. To do this, pure oxygen is used in the combustion process instead of ambient air. In combination with downstream treatment, almost 100 percent of CO₂ emissions from cement clinker production can be captured. The separated process gas is then processed into high-purity CO₂ and can be used as a feedstock in the chemical industry or as a raw material in other industries, or alternatively stored.

“Taking the project in Geseke as an example, up to 3.5 percent of the German cement industry's emissions could be saved.”

Miguel López, Chief Executive Officer of thyssenkrupp Decarbon Technologies

"The use of polysius® pure oxyfuel technology offers considerable potential for projects such as GeZero. Taking the project in Geseke as an example, up to 3.5 percent of the German cement industry's emissions could be saved," **explains Miguel López, Chief Executive Officer of thyssenkrupp Decarbon Technologies.** "With an annual global cement production of more than four billion tons, we see enormous growth potential for our innovative technology and for Polysius."

Christian Myland, CEO of thyssenkrupp Polysius, adds: "We are proud to be involved in this flagship project for one of the world's leading cement manufacturers. It once again underlines the acceptance of the polysius® pure oxyfuel process developed by us as one of the most promising technologies for CO₂ reduction in the construction industry."

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Christian Knell, CEO of Heidelberg Materials Deutschland, emphasizes: "The planning phase is of great importance for our pioneering projects such as GeZero. In this context, choosing the right partners is crucial to the success of the project. A high level of commitment is required from everyone involved in order to keep to the demanding schedule. We very much appreciate having Polysius at our side as a reliable partner in this important phase."

With GeZero, Heidelberg Materials is focusing on CO₂ capture using state-of-the-art oxyfuel technology in combination with a CO₂ purification and liquefaction plant. In order to pave the way for inland CCS plants, a CO₂ transportation solution by rail is part of the planning until the necessary pipeline infrastructure is available. In addition, a local CO₂ storage hub is to be built as an interim storage facility.

The bottom line: GeZero is supported by the EU Innovation Fund. The EU Innovation Fund focuses on flagship projects with European added value that can lead to significant reductions in emissions.
