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Insights _ Polysius

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polysius® pure oxyfuel technology for CO₂ capture in cement production

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The polysius® pure oxyfuel process is a new type of clinker production process in which the otherwise normal ambient air is replaced by pure oxygen in the kiln combustion process. Compared with conventional plants, this novel process aims to concentrate, capture and reuse almost 100% of the CO₂ produced in a cost-effective manner. The medium-term goal is to further process the captured CO₂ with the help of renewable energies, e.g. into so-called "reFuels", in order to produce climate-neutral synthetic fuels, such as kerosene for air traffic.

Advantages of polysius® pure oxyfuel technology

In the clinker burning process commonly used to date, oxygen from the ambient air supplied is used. The oxygen content of the ambient air is around 21%. By using the ambient air, nitrogen in particular is introduced into the system, so that the concentration of CO₂ in the exhaust gas is only about 25% - 30%.

By introducing pure oxygen with the polysius® pure oxyfuel process, atmospheric nitrogen is eliminated from the clinker burning process. The gas volume is reduced considerably and allows a high concentration of CO₂ in the exhaust gas, so that almost 100% of the climate-damaging carbon dioxide can be captured.

Complex exhaust gas recirculation, as envisaged in the first-generation oxyfuel process, can be dispensed with here. This leads to overall reduced investment and operating costs for the polysius® pure oxyfuel process.

