



Low Emissions Intensity Lime & Cement - LEILAC

Projects supported by the European Union Horizon 2020 Research & Innovation

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Supported by the European Union, the LEILAC (Low Emissions Intensity Lime And Cement) projects are developing a breakthrough technology that aims to enable the cement and lime industries to capture those unavoidable CO₂ emissions emitted from the raw limestone.

The Calix process engineers the existing process flows of a traditional calciner indirectly heating the limestone via a special steel reactor. This unique system enables pure CO₂ to be captured as it is released from the limestone, as the furnace exhaust gases are kept separate.

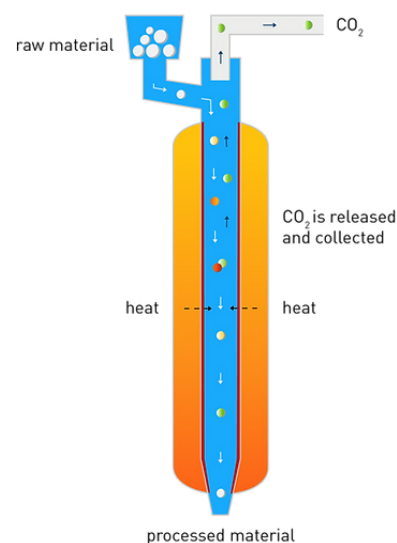
Calcining raw meal by indirect heating (LEILAC) or by contact-heat (conventional calciner) can be done in principle with the same specific energy. The process does not involve any additional processes or chemicals, and simply involves a novel "calciner" (kiln) design.

For the remaining emissions associated with heating the reactor, the technology just involves heating a module of tubes / reactors, and aims to enable the use any type of fuel or heat source. This makes achieving a low-emissions cement kiln relatively easy, using biomass rich fuels, electricity, hydrogen etc. If alternative fuels, biomass, or conventional fuels are used, conventional carbon capture techniques, which have been already developed and optimised by the power sector, can be applied to capture the combustion emissions, if no other alternative is found for the kiln's main burner.

The LEILAC technology is based on Calix's Direct Separation technology, which aims to enable the efficient capture of the unavoidable process carbon emissions, derived from its original application in the magnesite industry.

Applying and scaling up the technology to the cement industry carries a large number of risks. To quickly and effectively apply this technology, the European-Australian collaboration LEILAC projects include consortia of some of the world's largest cement, and lime companies, as well as leading research and environmental institutions.

The projects are supported by an External Advisory Board formed by CEMBUREAU (the European Cement Association), the European Cement Research Academy (ECRA), the Global Cement and Concrete Association (GCCA) and the European Lime Association (EuLA).



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