



SPIRE-08-2017

RECODE

Full Title: Recycling carbon dioxide in the cement industry to produce added-value additives: a step towards a CO₂ circular economy

Aim:

The objective of RECODE is to make cement industry able to contribute to at least 20% reduction of CO₂ emissions in the medium to long term. CO₂ present in the flue gases of cement industry will be captured and re-used to produce valuable chemicals to improve cement quality, reducing energy intensity of cement production and favoring CO₂ capture.

Concept: RECODE will develop a prototype using ionic liquid absorbers for CO₂ recovery integrated in an industrial plant for cement production. The CO₂ will be downstream to conversion units that will produce by methods developed within the project several chemicals. Calcium carbonate that can be used as cement nanofillers. Formic and oxalic acids by electrochemical reduction that can be used as cement setting accelerators. Furthermore reductive amination of the former reagents will produce high value azotate compounds such as glycine with a neutral or even negative carbon footprint on the contrary is opposed at the current 2.15 ton of CO₂ for ton of glycine produced.

Start date: 1 August, 2017

End date: 31 July, 2021
