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Views of the lime industry on carbon capture and re-use (CCU)

For the lime industry, due to the high share of CO2 emissions coming from the decarbonation of the raw material (68% on average), the most important CO2 mitigation measures are "end of pipe" solutions: CCS, CCU and carbonation.

However, the current EU ETS directive does not fully recognise the capture and re-use of CO2, as well as the "carbonation" of lime, where CO2 is naturally re-captured during the use phase of the product containing lime. This impact the following applications pertaining to the lime industry:

Re-carbonation

EuLA has conducted LCAs (Life Cycle Analysis) of lime in different applications. These studies have shown that:

- Carbonation is an integral part of lime functionality (hardening) during the use phase in different applications;
- Lime products act as natural sponge for CO2 absorption.

The overall carbon impact of some products using lime would be less important if carbonation was officially recognised. This is in particular the case for:

- **Lime containing mortars**: In ancient or new pure air lime mortars, carbonation level varies generally in the range of 80% to 92%;
- **Lime plasters**: Lime plasters carbonate fast (1 – 4 years) as part of their functionality
- **Lime used for soil stabilisation**: lime used in civil engineering for soil stabilisation in road construction show a carbonation rate of 35 to 40%

Carbon capture and re-use

Precipitated Calcium Carbonate (PCC) is produced by re-injecting CO2 into a lime slurry, thus returning to "calcium carbonate" (limestone, our raw material) in a controlled manner (for a specific morphology and particle size). PCC is mainly used in the paper industry.

Under the current rules of the EU ETS, and in particular the "Monitoring and Reporting Regulation"[1], "*where CO2 is used in the plant or transferred to another plant for the production of PCC (precipitated calcium carbonate), that amount of CO2 shall be considered emitted by the installation producing the CO2*" (Annex IV, point 10).

[1] Regulation Nº601 / 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC

In the same fashion, there are several projects where the CO2 from the lime production process could be used: production of **3rd generation biofuels** (from algae), production of **bitumen** (from algae as well), **energy storage** (thermochemical storage with lime as the storage medium).

EuLA therefore calls on the EU to allow:

- The inclusion of carbon capture and re-use under the "innovation fund" proposed within the revision of the EU ETS;
- The recognition of "carbonation" during the life cycle of the product
- The promotion of investment in the long term towards solutions allowing the re-use of CO2, and more broadly, of all greenhouse gases. This would imply:
    - To reinforce the economic attractiveness of these captured greenhouse gases;
    - To adapt the monitoring and reporting rules to ensure that the greenhouse gases captured and effectively re-used are not considered as emitted.

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