Electrochemical Production of Calcium Hydroxide for Cement Manufacturing

Tech ID: 34173 / UC Case 2020-677-0

BRIEF DESCRIPTION

Revolutionizing cement manufacturing through an energy-efficient electrochemical method that produces calcium hydroxide with reduced CO2 emissions.

FULL DESCRIPTION

This technology outlines an electrochemical process for producing calcium hydroxide by dissolving a calcium precursor and using electrochemical potentials to transport ions across membranes, resulting in the precipitation of calcium hydroxide. This innovative method not only promises improved energy efficiency but also significantly cuts down CO2 emissions, addressing two of the major environmental concerns associated with traditional cement production.

SUGGESTED USES

- Cement and concrete manufacturing.
- Construction materials with lower environmental impact.
- Renewable energy sectors through the integration of green hydrogen production.
- Chemical industry as a source of alkaline materials.

ADVANTAGES

- Enhanced energy efficiency in cement production.
- Significant reduction in CO2 emissions.
- Ability to utilize renewable energy sources.
- Production of valuable by-products such as hydrogen gas.
- Potential for integration into existing cement manufacturing processes.

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Reference for National Filings	2022/036006	02/17/2022	2020-677

Patent Pending

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OTHER INFORMATION

KEYWORDS

cement manufacturing, chemical process, bipolar electrolyzer, concrete, construction, alite, belite, limestone, portlandite, calcium silicate hydrate, electrolyzer

CATEGORIZED AS

- **Energy**
  - Other
- **Materials & Chemicals**
  - Other
- **Engineering**
  - Other

RELATED CASES

2020-677-0

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