

Carbon dioxide fixation method

Contribute to carbon neutrality with CO₂ fixation technology using Ca/Mg containing waste as raw material!

Overview

The CO₂ fixation technologies so far often use alkaline earth metals to fix CO₂ by conversion into chemically stable carbonate mineral. The conventional technologies are difficult to apply on a large scale because of its slow reaction rate, high cost due to the use of a large amount of pH adjuster, and poor profitability.

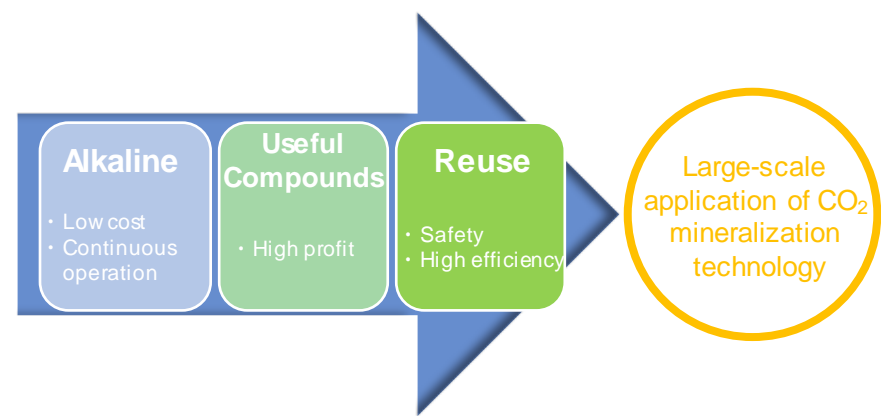
This invention discloses novel CO₂ fixation enables to run under low temperatures (below 100°C) without using large amounts of pH adjusters and continuously at low cost by recycling of the input chelating agent (GLDA) during the process. This invention also enables to obtain carbonates like CaCO₃ or oxides like silica with high purity by using unutilized Ca/Mg-containing wastes such as combustion ash, waste concrete, and slag as Ca/Mg sources in the CO₂ fixation process. Fine chemicals like CaCO₃ and silica obtained in this sustainable CO₂ fixation technologies are expected to be secondary used for pigments, rubber, and desiccants.

Product Application

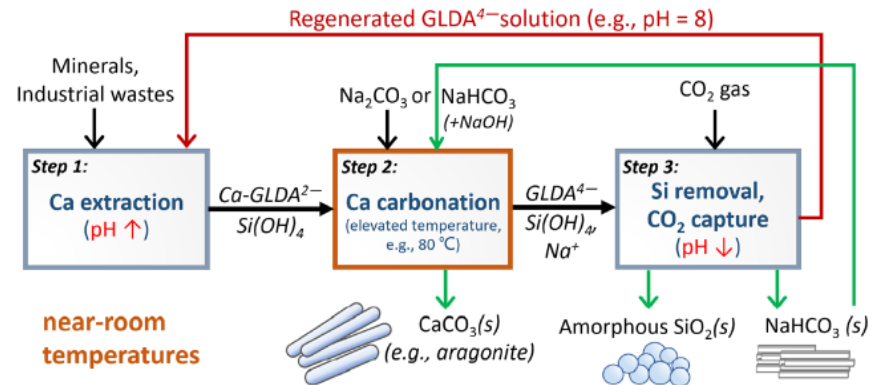
- ❑ Carbon Dioxide Fixation Equipment
- ❑ Reuse of Ca/Mg containing wastes
- ❑ Commercial use of reaction products (carbonate minerals, silica ex) fillers, pigments, fertilizers, cosmetics, glass, etc.

IP Data

IP No. : JP2022-102786A2、WO2022/138149
 Inventor : Noriaki Watanabe、Wang Jiajie、Noriyoshi Tsuchiya
 Admin No. : T20-1059



CO₂ fixation in 3 steps under low temperature and pressure conditions



Related Works

- [1] Jiajie Wang. et al. *Journal of Chemical Engineering* Volume 10 (2022) 107055
- [2] Jiajie Wang. et al. *Scientific Reports* 11 (2021) 13956

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