

### Eco-friendly calcium formate production via CO<sub>2</sub> conversion using waste containing CaO

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The suppression of greenhouse gas emission is recently considered more important than ever and consequently the development of technology for producing useful products of CO<sub>2</sub> conversion with excellent technological economy is of interest. By applying TBR system with the heterogenized hydrogenation catalyst to waste resources including CaO, it was possible to develop a process for efficient and selective production of Ca(HCO<sub>2</sub>)<sub>2</sub>, which was not previously considered as a CO<sub>2</sub> conversion product. According to the Techno-Economic Analysis (TEA) of the entire process, the lowest production price of Ca(HCO<sub>2</sub>)<sub>2</sub> is ca. 450 US\$/t lower than its average market price, demonstrating the high possibility of market penetration. In addition, based on life cycle assessment (LCA), the CO<sub>2</sub> amount emitted through the process is extremely low to contribute to the reduction of CO<sub>2</sub> emission globally in the future.