

Utilizing Carbon Dioxide Captured from a Cement Plant for Horticultural Applications

Taiheiyo Cement Corporation (Headquarters: Bunkyo-ku, Tokyo; President and Representative Director: Yoshifumi Taura, hereinafter "Taiheiyo Cement") and the National Federation of Agricultural Cooperative Associations (Head Office: Chiyoda-ku, Tokyo; President & CEO: Yoshifumi Kuwada, hereinafter "JA ZEN-NOH") have initiated efforts to utilize carbon dioxide (hereinafter, CO₂) captured from a cement plant for horticultural applications.

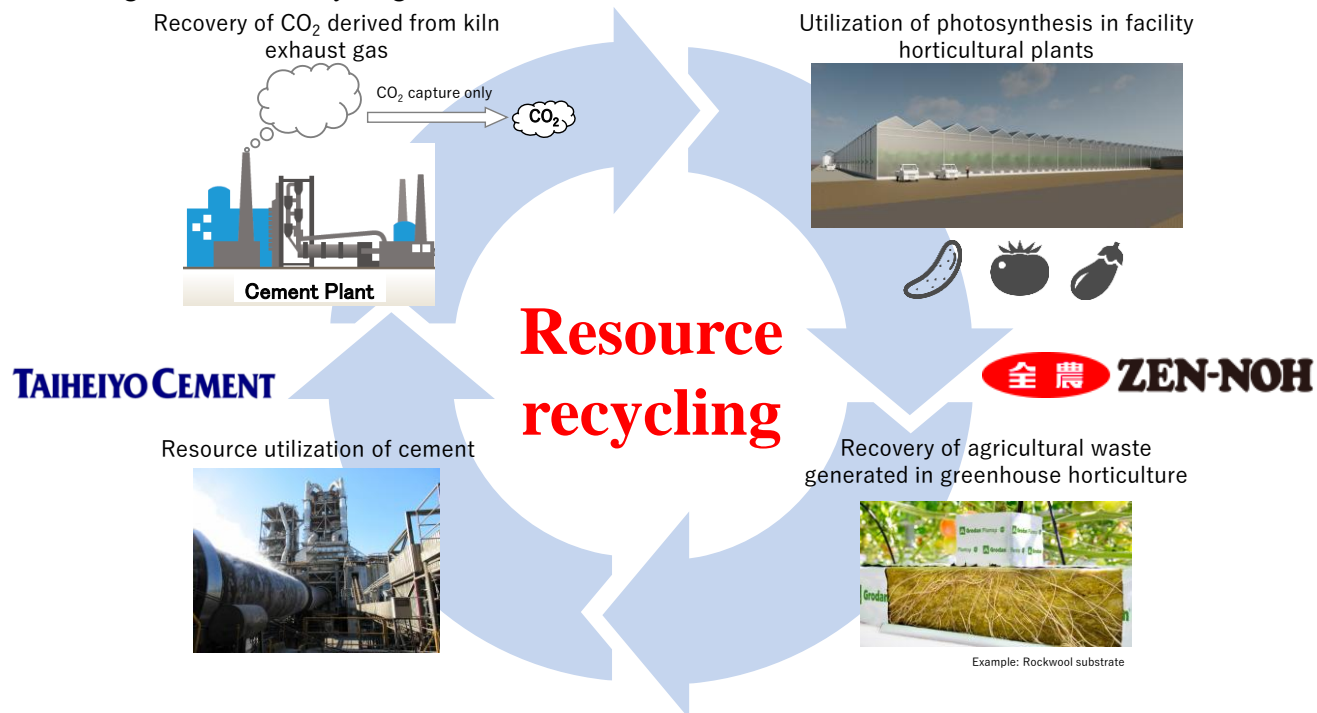
Taiheiyo Cement and JA ZEN-NOH have conducted trial usage of high-concentration CO₂ captured from cement plant exhaust gas in greenhouses at JA ZEN-NOH's Agricultural R&D Center (Hiratsuka City, Kanagawa Prefecture). CO₂ for this trial was captured by a demonstration facility using the chemical absorption method (amine-based) installed at Taiheiyo Cement's Kumagaya Plant (Kumagaya City, Saitama Prefecture) supported by a grant from NEDO (New Energy and Industrial Technology Development Organization).

The application of CO₂ in horticulture aims to enhance photosynthesis by increasing the CO₂ concentration within the greenhouse, thereby promoting plant growth and increasing crop yields. Many horticultural facilities in Japan currently use CO₂ generated by burning fossil fuels such as kerosene and liquefied petroleum gas (LPG). This initiative allows for the reduction of CO₂ emissions derived from fossil fuel combustion by utilizing high-concentration CO₂ captured from the exhaust gas generated in cement manufacturing. In the trial usage at the Agricultural R&D Center, it was confirmed that the growth conditions of vegetables were comparable to those using commercially available CO₂.

JA ZEN-NOH is advancing demonstrations to establish and promote large-scale, high-yield cultivation technologies in horticulture, including the introduction of high-eave greenhouse facilities and the application of CO₂ within the greenhouse to support photosynthesis during daylight hours. Taiheiyo Cement has unveiled its "Carbon Neutral Strategy 2050," targeting carbon neutrality throughout its supply chain by 2050. The company is actively pursuing CO₂ reduction efforts and is fostering a circular economy by utilizing waste and by-products as raw materials and fuels for cement production.

Moving forward, Taiheiyo Cement and JA ZEN-NOH will not only focus on comprehensive research regarding the provision and use of CO₂ in horticultural facilities but also explore the construction of a resource recycling system that connects agriculture and the cement industry, including the conversion of agricultural waste generated in horticulture into cement resources.

< The image of resource recycling >



【Related news release】

• February 4, 2022

「Taiheiyo Cement has completed installations to demonstrate CO₂ capture from kiln exhaust gas and the utilization of the captured CO₂」

<https://www.taiheiyo-cement.co.jp/english/summary/pdf/220204.pdf>

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