

A NEDO Green Innovation Fund Project:
Development of CO₂ Capture Technology for the Cement Production Process
**Commencement of Demonstration Runs of C2SP Kiln® for CO₂-capture Technology
in the Cement Production Process**

Taiheiyo Cement Corporation (Head Office: Bunkyo-ku, Tokyo; President and Representative Director: Yoshifumi Taura) has been developing the C2SP kiln® CO₂-capture technology under a NEDO Green Innovation Fund Project. The project, to design and demonstrate technology for CO₂-capture in the cement production process, was adopted by NEDO (New Energy and Industrial Technology Development Organization) of Japan for its Green Innovation Funding Program on January 28, 2022.

Installation of the demonstration equipment for CO₂-capture in the cement production process has been completed, and a completion ceremony was held on March 7.

We, Taiheiyo Cement, have focused our CO₂-capture technology development on the fact that about 70% of CO₂ from cement production is generated in the calciner. This has allowed us to develop technology to efficiently capture CO₂ in a compact facility by replacing the conventional calciner with a unique CO₂-capture calciner. We are also developing methanation technology suitable for the cement production process to convert recovered CO₂ into synthetic methane, which can be utilized as heat energy in cement production. We have shifted this project to demonstration test stage with this equipment toward deployment at actual cement plants.

<Overview of the Demonstration Test Equipment>

Equipment Name	Demonstration equipment for CO ₂ -capture from the cement production process, and methanation suitable for the cement production process
Construction Site	Sanyo Onoda City, Yamaguchi Prefecture (in Onoda Plant, Taiheiyo Materials Corporation)
Equipment Capacity	C2SP kiln®: CO ₂ capture capacity: 2.4 tons/day (clinker production capacity: 5 tons/day) Methanation: 300Nm ³ /day

<Assumed development schedule at present>

(1) C2SP kiln®

- 2023-2025: Demonstration runs with the equipment installed in the Onoda Plant of Taiheiyo Materials Corporation
- 2026-2030: Construction of demonstration equipment at actual plant level at the Kawasaki Plant of DC CO., LTD. , which we have been studying as a carbon-neutral model plant. Completion of technological development through demonstration testing at actual plant level.
- 2031-2050: Actual equipment operation at the Kawasaki Plant of DC CO., LTD. Further sequential deployment at other plants in our group.

(2) Methanation

- 2024-2025: Demonstration runs with the equipment installed in the Onoda Plant of Taiheiyo Materials Corporation.
- 2026-2030: Completion of development of methanation technology and feasibility study.

Development of carbon recycling technology optimized for the cement production process is the top priority for the future of the cement industry and an important growth strategy of ours. Through the development of innovative technologies such as this project, we will further accelerate our efforts to achieve carbon neutrality for the entire supply chain by 2050.



Completion Ceremony



Appearance of the demonstration equipment

* C2SP kiln® (Carbon Capture Suspension Preheater kiln) incorporates a “CO₂-capture calciner” which can efficiently capture CO₂ in the cement production process.

<Related News Release>

January 28, 2022: Adoption of “Development of CO₂-Capture Technology for the Cement Production Process” as a NEDO funded project under the Green Innovation Funding Program towards the world’s first cement production process to successfully capture limestone-derived CO₂ in the preheater

<https://www.taiheiyo-cement.co.jp/english/summary/pdf/220128.pdf>

September 9, 2022: Commencement of construction of C2SP kiln® demonstration equipment for CO₂-capture in the cement production process

<https://www.taiheiyo-cement.co.jp/english/summary/pdf/220909.pdf>

August 7, 2023: Launch of “Carbon Neutral Model Plant” concept study

<https://www.taiheiyo-cement.co.jp/english/summary/pdf/230807.pdf>