

## TBM and Greenore sign business alliance agreement to promote CCU calcium carbonate

**Tokyo, January 19, 2024** – TBM is pleased to announce the business alliance with Greenore to promote CCU (Carbon Capture and Utilization) calcium carbonate developed by Greenore and developing “Next-generation LIMEX” made with CCU calcium carbonate. The CCU calcium carbonate is made from CO<sub>2</sub> captured from emitted gas and is expected to be carbon negative, meaning that the amount of greenhouse gases captured and converted is more than the amount of greenhouse gases emitted, according to the Life Cycle Assessment (LCA).

CCU, or Carbon Recycling technology, which separates and recovers emitted CO<sub>2</sub> and reuses it as a raw material for various carbon compounds, is attracting global attention as one of the essential technologies for reducing CO<sub>2</sub> emissions.

TBM has the unique technology to develop calcium carbonate-based material, obtained through the development of limestone-based material LIMEX\*. Greenore has the unique CCU technology to produce calcium carbonate from CO<sub>2</sub>-containing emitted gas. Through the partnership of TBM and Greenore, we aim to promote and expand the use of carbon-recycled products with low environmental impact.

\*LIMEX is an inorganic filler-dispersion composite material containing more than 50% inorganic materials such as calcium carbonate.



### ■ Background

In developing, the Next-generation LIMEX made from CCU CaCO<sub>3</sub> instead of limestone, TBM has been working on generating calcium carbonate by utilizing CO<sub>2</sub> gas emitted from factories and power plants, with support from NEDO and Tohoku University. TBM's strategy is based on the roadmap of the Japanese government's "Basic Policy toward the Realization of GX (Green Transformation)."

Greenore is a spin-off of Columbia University since 2016, co-founded by Professor Alissa Park and Dr Sean Zhou, a research team at Columbia that worked on developing CCUS technology. In 2023, through a joint venture with Baogang Group, a Chinese state-owned steel manufacturer, Greenore launched a mass production plant of CCU calcium carbonate ahead of the rest of the world.

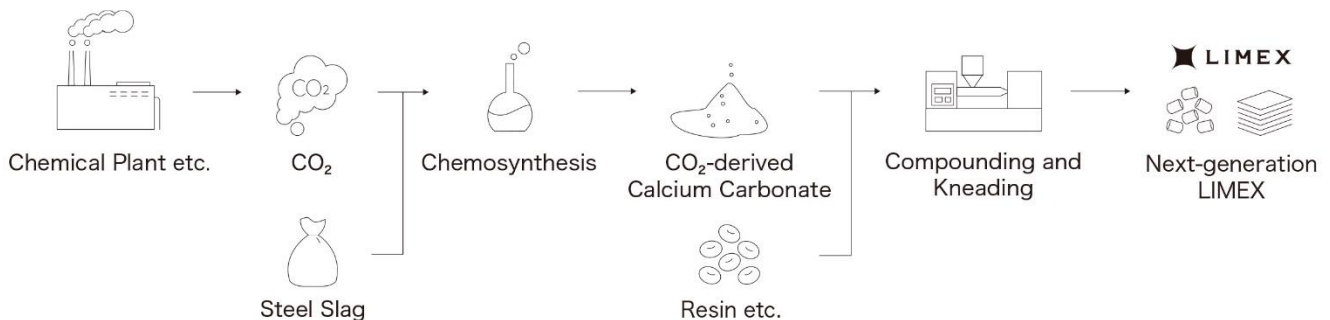
## ■ Overview

TBM has developed "Next-generation LIMEX" with CCU calcium carbonate produced by Greenore. The CCU calcium carbonate is expected to be carbon-negative by capturing CO<sub>2</sub> emitted from chemical plants and chemically synthesizing the CO<sub>2</sub> with calcium ions in steel slag, a byproduct from steel mills. This innovative "Next-generation LIMEX" product was presented as a prototype at the Davos Meeting in 2024.

Through this alliance, TBM and Greenore are leveraging their strengths to promote CCU calcium carbonate use, such as below:

- TBM's development of Next-generation LIMEX using CCU calcium carbonate as the main raw material.
- Exclusive promotion and test marketing by TBM of Greenore's CCU calcium carbonate in Japan.
- Exclusive feasibility study by TBM and Greenore for future CCU calcium carbonate production in Japan.

These efforts will embody the vision of both companies to be carbon-neutral and contribute to the realization of a sustainable society.



## About Next-generation LIMEX

### ■ Message from TBM Co., Ltd. CEO Nobuyoshi Yamasaki

We are pleased to announce that we could successfully develop the Next-generation LIMEX, which will be made mainly from CCU calcium carbonate. CCU calcium carbonate absorbs CO<sub>2</sub> from emission gas and is expected to be carbon-negative. We are very happy to partner with Greenore to promote LIMEX and the CCU calcium carbonate widely to contribute to building a decarbonized society. Greenore's mission is to create a better planet for humanity. TBM and Greenore share the same vision to become a leading company in the sustainability business for future generations. TBM will continue to develop innovative technologies and implement them in society to achieve decarbonization and a circular economy.



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## ■ Message from Greenore Limited CEO Xiaozhou Sean Zhou

It is truly a privilege to partner with TBM to co-develop and promote the use of CCU calcium carbonate-based products such as LIMEX. Greenore's team has been dedicated to the lab-to-market since a decade ago at Columbia University and has successfully operated the world's first steel slag-based commercial carbon mineralization plant in 2023. This collaboration brings the carbon mineralization technology to the next level. We can't wait to see more LIMEX products being used in our daily lives. Sharing a common goal for the sustainability of our planet with TBM, Greenore will continue its effort to launch CCU plants around the world to contribute to the global decarbonization mission.



## ■ About TBM Co., Ltd.

TBM is a company based in Japan specializing in developing and delivering LIMEX, an innovative new material mainly made from inorganic materials. The basic patents of LIMEX have been registered in over 40 countries and introduced to over 10,000 organizations. LIMEX is registered in the Sustainable Technology Promotion Platform "STePP" by UNIDO as a recyclable material that can be an alternative to plastic and paper. By supplying and recycling LIMEX, TBM aims to solve plastic waste, resource depletion, and various environmental issues.

<https://tb-m.com/en/>

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