August 5th 2020
Mitsubishi Corporation

R&D on Use of CO_2 in Concrete

Mitsubishi Corporation (MC) is pleased to announce that its proposal for researching and developing new ways to use CO_2 in the production of concrete has been selected for the NEDO[1] grant project that encompasses technological developments in the areas of carbon-recycling.

Carbon-recycling technologies make effective use of CO_2 emissions captured from steel mills, power plants, cement manufacturing plants and other facilities to create value-added products. They are being developed as a means to help address climate change. Having recognized their potential, MC is working on those that inject CO_2 into concrete, where it becomes mineralized and permanently embedded. Concrete is an essential material for civil engineering and construction projects, and its global market is growing.

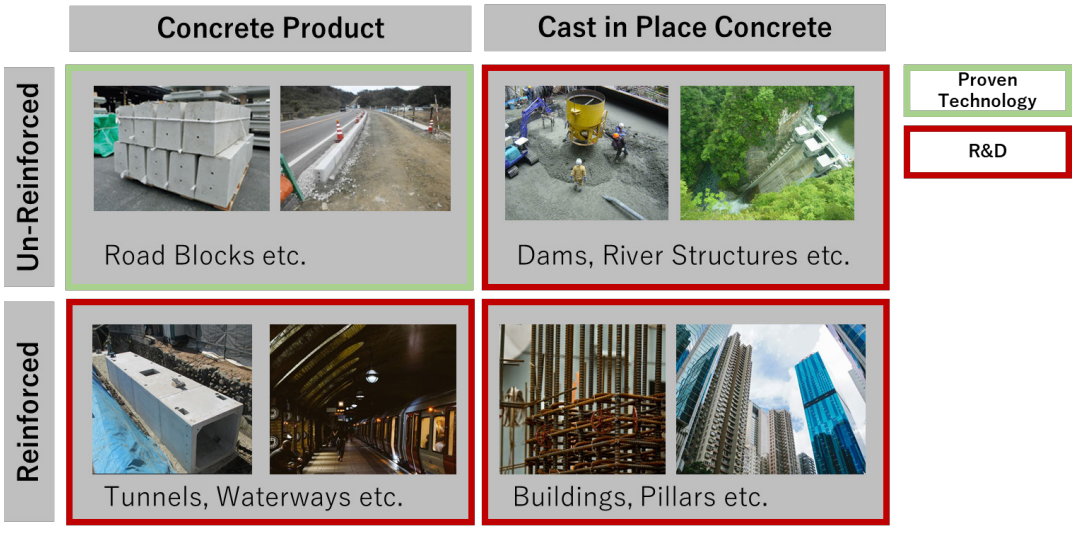
Most of the current carbon-recycling technologies are mainly used for a limited scope of unreinforced concrete, such as concrete blocks, so the challenge now is to enhance their mineralization capabilities and broaden their applications.

This joint endeavor between MC, Kajima Corporation and Chugoku Electric Power Co.,Inc. aims to improve these technologies so that they can also be applied to the reinforced and cast-in-place concretes used in building construction.

MC has already been involved in the development of concrete projects that take advantage of carbon-recycling, including a zero-emission, ecological concrete called CO_2-SUICOM[2].

CCUS[3] technology including Carbon-recycling is an excellent opportunity for MC to leverage its strengths, as collaborations are essential across industries that both emit and use CO_2. By developing such businesses, MC will realize its vision of simultaneously generating economic, societal and environmental value.

<R&D Areas>



1. New Energy and Industrial Technology Development Organization.
2. For unreinforced products developed by Kajima Corporation, Chugoku Electric Power Co.,Inc., Denka Company Limited, and Landes Co., Ltd..
3. Carbon capture, utilization and storage technologies.

Project Profile

1. Project Name: Technology Development for Effective Use of CO_2 in Concrete
2. Scope of R&D:
   (1) Development of technology to expand the use of concrete that effectively uses CO_2
      a. Development of carbonation technology for cast-in-place concrete
      b. Development of quality assurance technology for reinforced concrete
      c. Large outdoor tests at NEDO's carbon-recycling research facility, Osaki-kamijima, Hiroshima Prefecture
   (2) Approaches to technical issues that may arise in the expansion of the technology
   (3) Business evaluation
3. Delegates:
   (1) Kajima Corporation
   (2) Chugoku Electric Power Co.,Inc.
   (3) Mitsubishi Corporation
4. Term: FY2020 to FY2022
5. Roles:
   (1) Kajima Corporation: Technology development
   (2) Chugoku Electric Power Co.,Inc.: Outdoor tests
   (3) Mitsubishi Corporation: Market research and business feasibility assessment