
Taikisha Starts Joint Research with JAXA Space Exploration Innovation Hub Center, Tokyo University of Science, and Taisei Corporation.

Taikisha Ltd. (Head Office: Shinjuku-ku, Tokyo, Japan; Representative Director, President: Koji Kato) has started the research “Sustainable carbon recycling technology based on direct air CO₂ capture with solar energy chemical absorption process,” which was adopted in the seventh request for research proposal by the Space Exploration Innovation Hub Center of the Japan Aerospace Exploration Agency (hereinafter referred to as “JAXA”), in collaboration with Tokyo University of Science and Taisei Corporation.

The Company will endeavor to contribute to carbon recycling in space by utilizing our long-accumulated expertise in the concentration and treatment of solvents and the storage and transportation of powders.

■ Research theme

“Sustainable carbon recycling technology based on direct air CO₂ capture with solar energy chemical absorption process”

■ Purpose and details of the research

This research was selected as a research theme for the project “Effective Utilization Technology of Low-Grade Raw Materials” (*), which was solicited by JAXA Space Exploration Innovation Hub Center in 2021. Based on direct air CO₂ capture with a solar energy chemical absorption process, this research aims to realize practical carbon recycling, including separation, recovery, storage, transportation, and utilization, by improving CO₂ absorption/release technology, and studying the introduction of a CO₂ separation/recovery system, the storage and transportation of CO₂-absorbed solids, and the sustainable utilization of recovered CO₂.

Among these missions, Taikisha will undertake the study of storage and transportation utilization of CO₂-absorbing solids as its main research, and the improvement of the technology for direct air CO₂ capture and the study of the introduction of a CO₂ separation/recovery system as its subsidiary research, by utilizing our expertise in the concentration and treatment of solvents and the storage and transportation of powders long accumulated in NMP Recovery System, powder coating technology, and technology related to dry booths.

Considering the potential of this joint research as one of the medium and long-term themes toward the “realization of sustainable value creation,” which is declared as the direction the Company should seek, Taikisha is determined to pursue the joint research in collaboration with JAXA Space Exploration Innovation Hub Center, Tokyo University of Science, and Taisei Corporation.

- (*) Outline of issues with “Effective Utilization Technology of Low-grade Raw Materials”
- (1) Reducing burdens of space transportation by making effective use of low-grade raw materials, such as natural resources (minerals, gases, etc.) on the Moon and Mars, and materials and equipment that became no longer necessary in sustainable activities
 - (2) Contributing to dealing with the depletion of natural resources and reducing environmental burdens by newly utilizing raw materials that were considered to be unnecessary on Earth in the past

■ **Research period**

April 1, 2022 to March 31, 2023

■ **Implementing organizations**

Japan Aerospace Exploration Agency (JAXA)

Tokyo University of Science *Representative organization

Taisei Corporation

Taikisha Ltd.

■ **JAXA Space Exploration Innovation Hub Center**



JAXA Space Exploration Innovation Hub Center was established in 2015 with the aim of achieving both the application of technology to future space exploration and industrial development, and the creation of new industries through commercialization on Earth. Based on technological information on space exploration provided by researchers from companies, universities, research institutes, etc., the Space Exploration Innovation Hub Center is committed to research and development of open innovation hubs through “requests for research proposals,” in which research projects are solicited for issues set by JAXA.

[Contact for inquiries concerning this matter from the press]

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