Kanadevia Corporation

AIST Group

January 14, 2025

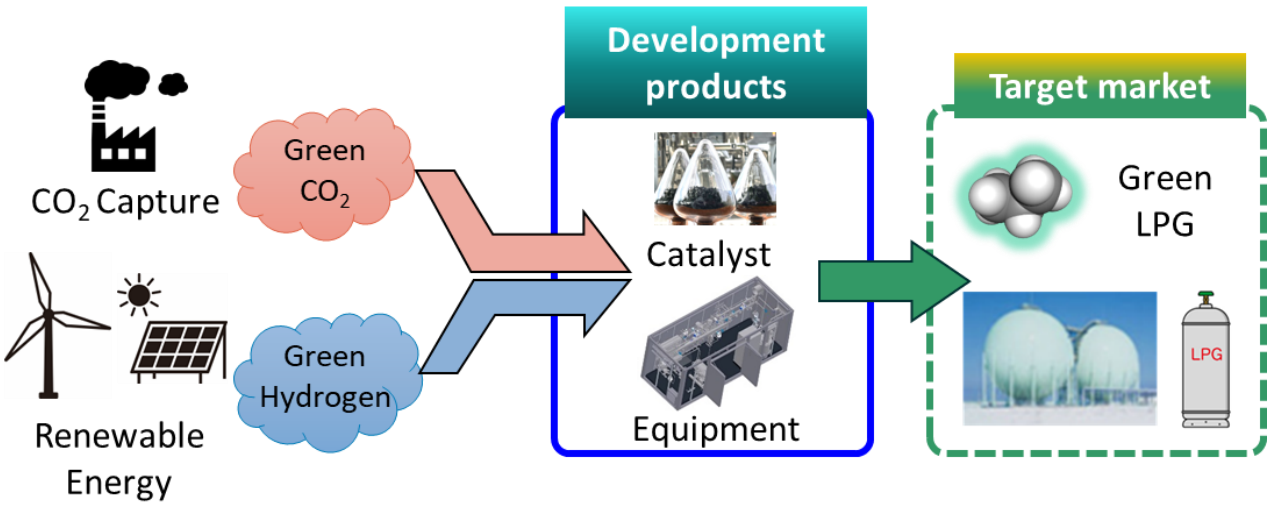
Succeeded in Synthesizing Liquefied Petroleum Gas (LPG) Directly from CO_2 ～Developed Catalyst and Process for LPG Synthesis～

Hitachi Zosen Corporation changed its company name to Kanadevia Corporation in October 2024.

Kanadevia Corporation (Head office: Osaka-City, President and COO: Michi Kuwahara; hereinafter, "Kanadevia") is pleased to announce that Kanadevia, and the AIST Group (National Institute of Advanced Industrial Science and Technology (hereinafter, "AIST") and AIST Solutions Co.) succeeded in synthesizing Liquefied Petroleum Gas (LPG) directly from carbon dioxide (CO_2) under low pressure conditions of less than 1 MPa, using a newly developed special catalyst and synthesis process and equipment.

Based on the result of this study, Kanadevia and the AIST Group plan to examine the possibility of scaling up, and start a year-long demonstration test for annual production of 3 to 4 tons.

【Development Image】



【Equipment for demonstration tests】

Kanadevia is actively working to achieve the Sustainable Development Goals (SDGs), adopted at the UN Summit, and to solve the global environmental problems through clean energy technologies.
As part of such effort, Kanadevia and AIST established the "Kanadevia-AIST Collaborative Research Laboratory for Sustainable Green Energy Production *1" in April 2023 and have been conducting research.
In this technology, green LPG is synthesized by passing "green hydrogen" derived from renewable energy sources such as solar and wind power generation and CO_2 emitted from factories through a newly developed catalyst. LPG is in high demand for industrial and residential use and is considered an essential fuel that can be quickly restored in case of a natural disaster.
The technology to selectively synthesize LPG directly from CO_2 is challenging, and no catalyst or synthesis process has been commercialized to efficiently synthesize the desired LPG component. Kanadevia has already developed a synthetic methane (e-methane) business that uses CO_2, and based on these technologies, has been conducting research and development into the direct production of synthetics high-calorie gas and LPG components, equivalent to city gas components from CO_2.

The market for green LPG is expected to grow to 2 million tons by 2035, and 8 million tons by 2050 in Japan*2. By establishing LPG synthesis technology, Kanadevia will contribute to social implementation of carbon-recycling LPG synthesis equipment and the realization of a sustainable energy society.

※ 1 : At the time of establishment, the laboratory was known as "Hitachi Zosen-AIST Collaborative Research Laboratory for Sustainable Green Energy Production"; on October 1, 2024, the laboratory's name was changed with the name change of Hitachi Zosen.
※ 2 :Adapted from "The Positioning and Direction of LP Gas in the Next Basic Energy Plan," Ministry of Economy, Trade and Industry (METI) data.
https://www.meti.go.jp/shingikai/enecho/shigen_nenryo/pdf/042_s02_00.pdf

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