

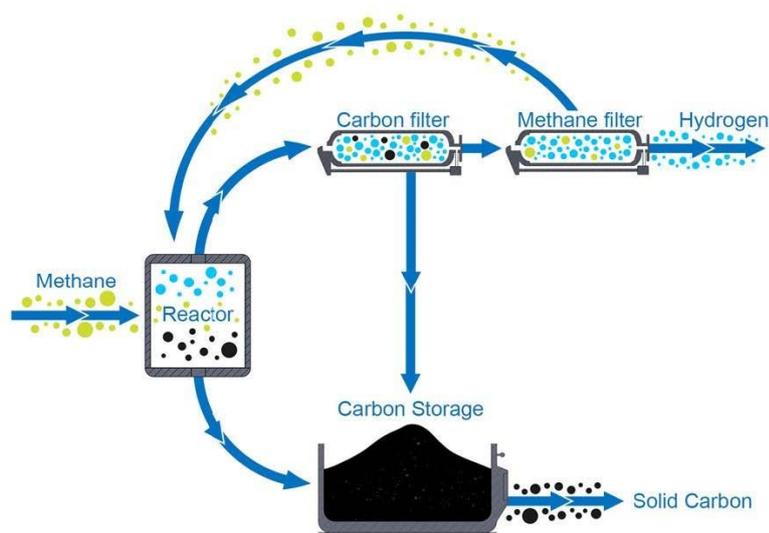
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Sojitz Corporation

Sojitz Invests in Hycamite TCD Technologies Oy in Finland, a Developer of
Turquoise Hydrogen Production Technology

Sojitz Corporation (“Sojitz”) has invested in Hycamite TCD Technologies Oy (“Hycamite”), a developer of turquoise hydrogen production technology.

Hycamite is a Finnish startup company founded in 2020 and a developer of a technology that produces hydrogen (H_2) and solid carbon (C) through thermo-catalytic decomposition of methane (CH_4), which is the main constituent of natural gas and biogas. Hydrogen produced through this method of methane pyrolysis is known as “turquoise hydrogen”* and is garnering attention as the next-generation hydrogen production method due to the fact that carbon dioxide (CO_2) is not released in the process. Hycamite has developed revolutionary proprietary catalytic technology that requires less energy (only 13% of the energy that is used to produce hydrogen through electrolysis) and produces carbon nanotubes and other solid carbon products with the high added value of different crystalline structures.



[Hycamite’s production process]

While clean hydrogen curtails CO_2 emissions into the atmosphere, general widespread introduction of clean hydrogen production presents technological challenges such as carbon dioxide capture and storage (CCS) for CO_2 emissions from

the production process, as well as cost-related issues that include securing low-cost renewable energy and building the necessary infrastructure for hydrogen transport and storage. Hycamite's zero-carbon emissions production technology therefore provides a promising solution which has the benefit of low energy consumption during reactions and offers a local production and local consumption system for supplying hydrogen.

In addition, the carbon products produced using Hycamite's technology have multiple applications including use in next-generation lithium-ion batteries and other composite materials utilized as high-performance materials. By curbing CO₂ emissions in production, Hycamite is capable of responding to new needs that anticipate decarbonization.

Hycamite has raised EUR 25 million in funding through a third-party allotment of shares underwritten by Sojitz, the Finnish Climate Fund, and other investors.

Hycamite plans to use the funds raised to build a demonstration plant capable of annually producing the equivalent of 2,000 tons of hydrogen (approximately 2,880 Nm³/h). Pilot technical demonstrations have already been completed, and the new demonstration plant is expected to begin operations in mid-2024 within Kokkola Industrial Park in central Finland.



[Image of completed demonstration plant currently under construction]

Through this investment, Sojitz has acquired an exclusive license for Hycamite technology in Japan. Moving forward, Sojitz will work with Hycamite to advance commercial-scale projects in Japan and around the world with the aim of building the business by the latter half of the 2020s. The planned commercial plant will have a production scale of more than 10,000 tons of hydrogen annually and will contribute to decarbonization efforts across multiple industries worldwide.

*Hydrogen color codes

Grey Hydrogen	$\text{CH}_4 + 2\text{H}_2\text{O} \rightarrow 4\text{H}_2 + \text{CO}_2$
Blue Hydrogen	$\text{CH}_4 + 2\text{H}_2\text{O} \rightarrow 4\text{H}_2 + \text{CO}_2$
Green Hydrogen	$2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$
Turquoise Hydrogen	$\text{CH}_4 \rightarrow 2\text{H}_2 + \text{C}$

Hydrogen is color coded based on the type of production method used. At present, grey hydrogen derived from fossil fuels is most common. Blue hydrogen is produced from fossil fuels but includes storage of CO₂ underground to reduce emissions into the atmosphere. Green hydrogen is produced using renewable energy to electrolyze water. Turquoise hydrogen refers to the production of hydrogen through thermal decomposition of methane, which is the main component of natural gas.

[Related Information]

[Company Overview – Hycamite TCD Technologies Oy]

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