

March 30, 2021

MITSUBISHI GAS CHEMICAL COMPANY, INC.

Mitsubishi Gas Chemical to Launch 'Circular Carbon Methanol' Production

Mitsubishi Gas Chemical Company, Inc. (MGC; Head Office: Chiyoda-ku, Tokyo; President: Masashi Fujii) will launch methanol production using carbon dioxide (CO₂) and hydrogen at its Niigata plant pilot facility. The plan involves the production of 'Circular Carbon Methanol' (CCM), in which CO₂ emissions and waste plastics etc. are converted into methanol, a basic substance used to make chemical products and source of energy such as fuel and for power generation. MGC hopes to develop CCM as the business model through cross-industry cooperation that will be the solution to materialize a decarbonized and recycling-oriented society.

○ Methanol production technology using CO₂ and other various source of gases

Methanol has a wide range of applications as a basic chemical, and in recent years, it has been more frequently used for conversion into ethylene and propylene. It also can be used as a carrier for hydrogen, which has potential as a carbon-neutral fuel, and for energy applications including shipping and boiler fuel. MGC has a long history of developing methanol production technology using CO₂ and hydrogen, having developed methanol synthesis technologies based on proprietary catalysts over many years and gaining operational experience and production know-how from its overseas production bases. As part of plans to remodel the methanol pilot facility at MGC's Niigata plant this year, the company will evaluate technological issues including optimization of its methanol synthesis process through tests and continuous operation (CO₂ throughput: approximately 1.5 tons/day). MGC plans to start licensing its methanol production technology using CO₂ and hydrogen by the end of 2022.

In addition, MGC will develop and establish new methanol production technologies using various gasses, including CO₂ emitted by non-fossil biomass materials and recycled raw materials such as plastics. The company plans to start licensing these technologies by the end of 2023.

○ Circular Carbon Methanol (CCM)

1. Overview

CCM is methanol produced using captured CO₂, hydrogen derived from renewable energy sources, or gasified recycled materials. CCM can be used to make basic chemicals and plastics, and can also be used as a hydrogen carrier for power generation and fuel applications. CCM enables the captured CO₂ emissions from power plants and waste plastics to be recycled into methanol, making it very environmentally friendly.

2. Cooperation in syngas production technology

MGC will work with engineering and hydrogen production companies to develop technologies for CO₂ separation and capture, hydrogen production from renewable energy sources, and syngas production, thereby creating the ideal infrastructure to compliment MGC's CCM production technology.

3. Operation and maintenance technical support

In conjunction with the licensing of this manufacturing technology, MGC will work to provide a safe and efficient production system by delivering technical support services utilizing advanced digital technology, including automation of plant operations and remote operation support.

4. Our customers

Our main customers for this service will be companies and local governments that are responsible for significant sources of CO₂ emissions (power generation, chemical, and steel industry related facilities, oil refineries, incinerator facilities, etc.) MGC values its customers and can be flexible to meet a variety of requirements.

By developing CCM through cross industry cooperation and public/private collaboration, MGC aims to bring innovation to established industrial structures and economic society that will promote new growth and help create a decarbonized and recycling oriented society.

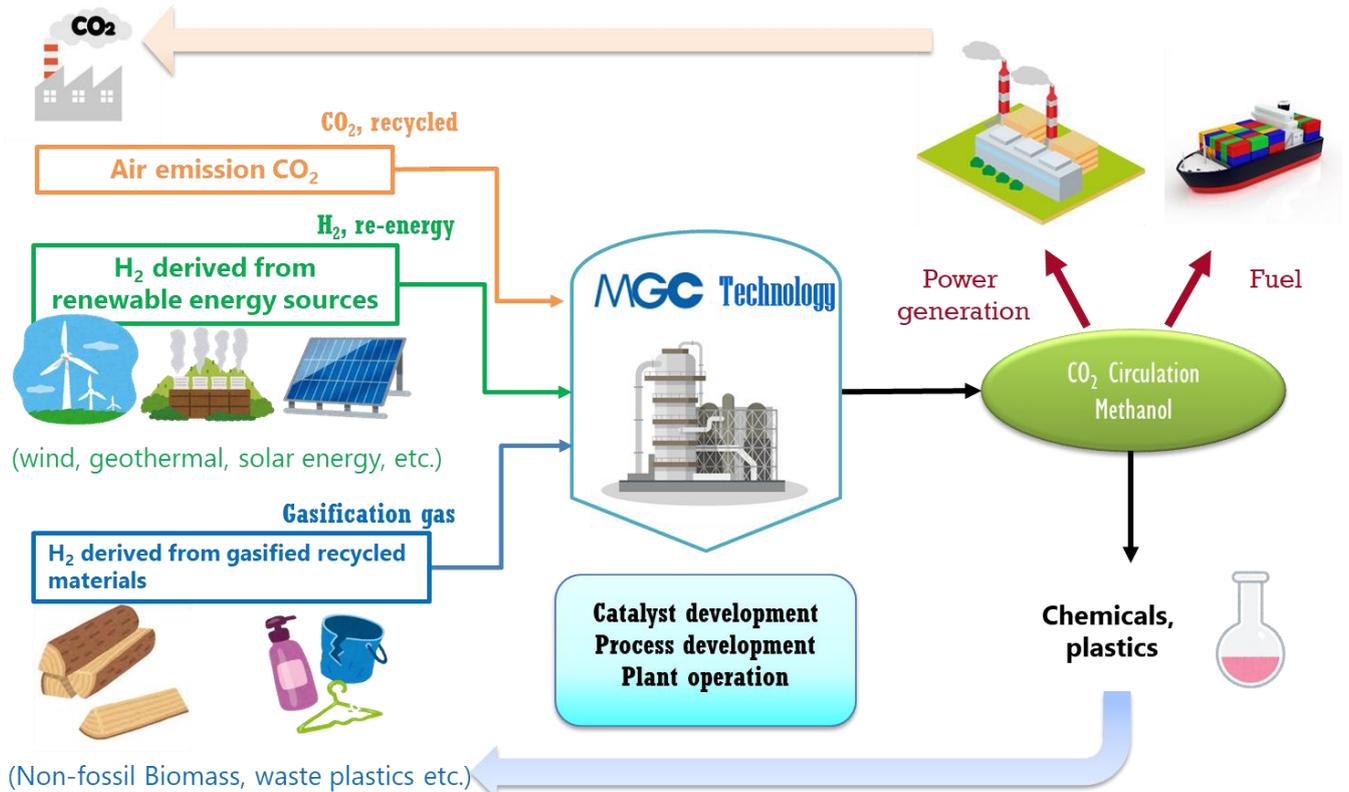


Fig. Circular Carbon Methanol



Photo. Methanol Pilot Plant, Niigata, MGC

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INQUIRIES

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