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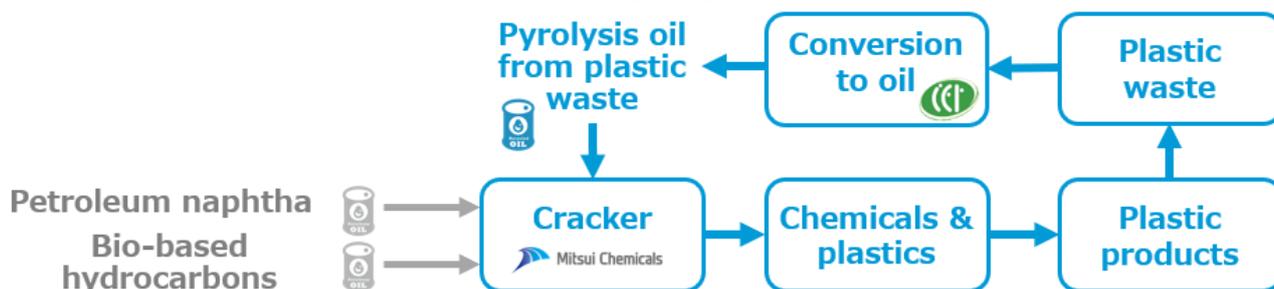
Mitsui Chemicals, Inc.

**Mitsui Chemicals Launches Recycled Chemical Products Made With Pyrolysis Oil From Plastic Waste, Achieving Japan’s First Bio & Circular Cracker**

**Mitsui Chemicals and KAO corporation start a collaborative project for closing the loop with chemical recycling**

Mitsui Chemicals, Inc. (Tokyo: 4183; President & CEO: HASHIMOTO Osamu) today announced that it has sourced pyrolysis oil from plastic waste from CFP CORPORATION (Fukuyama, Hiroshima; CEO: FUKUDA Namie) and fed it into a cracker at its Osaka Works in Takaishi, Osaka, this March to begin the production and sale of chemically recycled derivatives, namely chemicals and plastics, through the mass balance approach. The move comes as part of a broader company effort to help establish a circular economy.

**Chemical recycling flowchart**



**■The mass balance approach**

The mass balance approach is a method in which, during the process of turning raw materials into final products and the distribution process, raw materials with certain properties (e.g., bio-based raw materials and recycled materials) are mixed with raw materials that do not have these properties (e.g., petroleum-based raw materials); thus, the properties are assigned to a portion of the product according to the amount of input of the raw materials with those properties (edited version of the definition provided in the Ministry of the Environment’s Roadmap for Bioplastics Introduction). Mitsui Chemicals believes the mass balance approach will play an important role in the creation of a society based on biomass and recycling.

Going forward, the Mitsui Chemicals Group will pursue market growth for recycled chemical products made via the mass balance method in line with ISCC PLUS certification, which is widely adopted in Europe.

\* The Mitsui Chemicals Group pledges its commitment to complying with the ISCC PLUS requirements, in accordance with the latest ISCC regulations, and to avoiding the practice of double counting the Group’s environmental contributions.

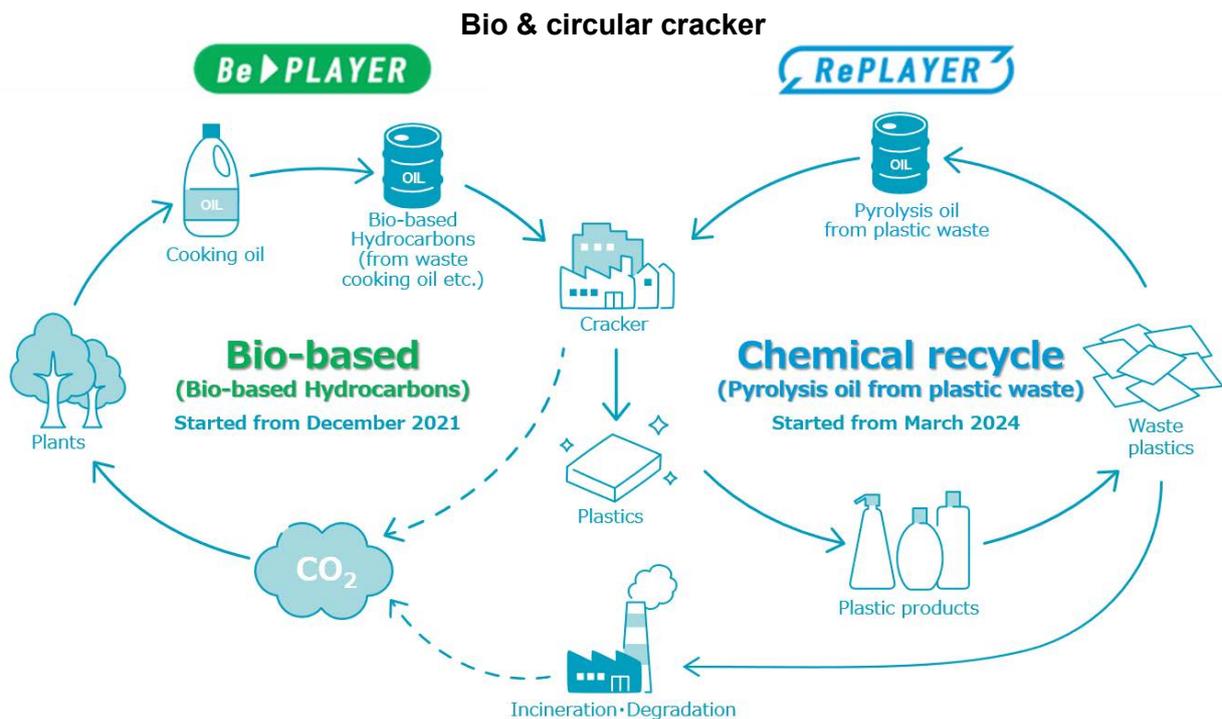
## Products certified under ISCC PLUS

Chemicals		Plastics	Processed goods
<ul style="list-style-type: none"> <li>▶ Ethylene</li> <li>▶ Propylene</li> <li>▶ Benzene</li> <li>▶ Toluene</li> <li>▶ B-B fraction</li> <li>▶ C5 fraction</li> <li>▶ Phenol</li> <li>▶ Bisphenol A</li> <li>▶ Acetone</li> <li>▶ Ethylene oxide</li> <li>▶ <math>\alpha</math>-methylstyrene</li> <li>▶ 1-Hexene</li> <li>▶ p-DIPB</li> <li>▶ Hydroquinone</li> <li>▶ Meta/para-Cresol</li> </ul>	<ul style="list-style-type: none"> <li>▶ Ammonia</li> <li>▶ Ethylene glycol</li> <li>▶ Dimethylaminoethanol (DMAE)</li> <li>▶ Diethylene glycol</li> <li>▶ Polyethylene glycol</li> <li>▶ Urea</li> <li>▶ Melamine</li> <li>▶ Methyl isobutyl ketone (MIBK)</li> <li>▶ toluene diisocyanate (TDI)</li> <li>▶ Isopropyl alcohol (IPA)</li> </ul>	<div style="border: 1px dashed blue; padding: 2px; margin-bottom: 5px;"> <ul style="list-style-type: none"> <li>▶ Polypropylene</li> <li>▶ Polyethylene</li> </ul> </div> <div style="background-color: #0070C0; color: white; text-align: center; padding: 2px; font-size: small;">Prime Polymer</div> <ul style="list-style-type: none"> <li>▶ TAFMER™</li> <li>▶ MITSUI EPT™</li> <li>▶ HI-ZEX MILLION™</li> <li>▶ MIPELON™</li> <li>▶ TPX™</li> <li>▶ EPOMIK™</li> <li>▶ <u>ADMER™</u></li> <li>▶ <u>MILASTOMER™</u></li> </ul> <p style="font-size: x-small; margin-top: 5px;">*The underlined products are only certified as Bio-circular category.</p>	<div style="border: 1px dashed blue; padding: 2px; margin-bottom: 5px;"> <ul style="list-style-type: none"> <li>▶ Polypropylene film</li> <li>▶ Polyethylene film</li> </ul> </div> <div style="background-color: #0070C0; color: white; text-align: center; padding: 2px; font-size: small;">Mitsui Chemicals Tohcello</div>

### ■ Pyrolysis oil is fed into a cracker to produce derivatives with equivalent quality to conventional products

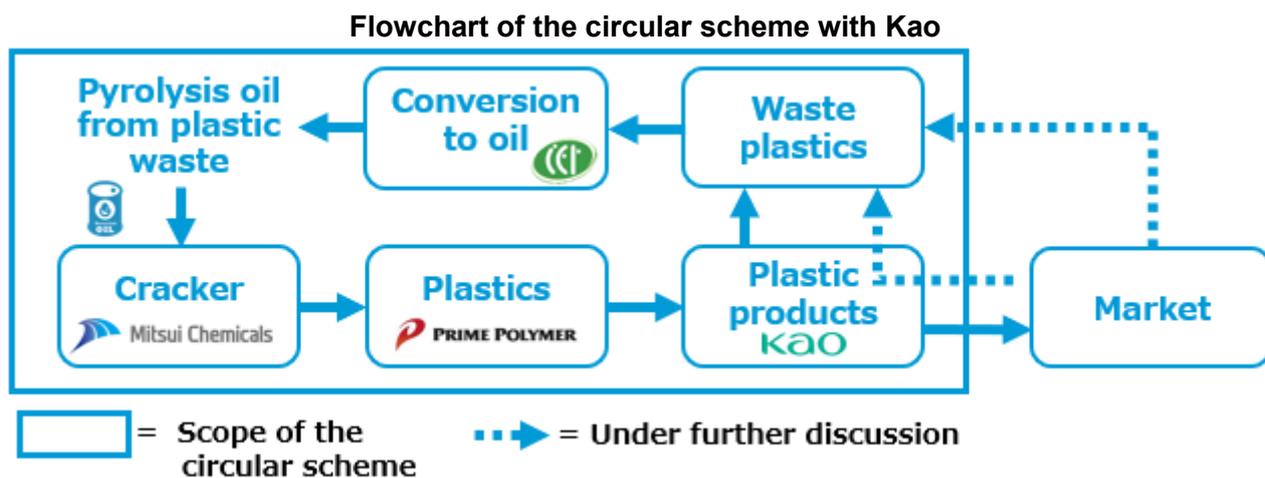
Just like naphtha and bio-based hydrocarbons, pyrolysis oil from plastic waste is hydrocarbon oil, which can be used as a cracker feedstock to manufacture the basic chemicals such as ethylene, propylene, C4 and C5 fractions, and benzene. These chemicals are then used to manufacture phenols, other basic chemicals, and polyolefins such as polyethylene and polypropylene. Physical properties of the chemicals and plastics produced are equivalent to conventional products.

Combined with Mitsui Chemicals' December 2021 introduction of bio-based hydrocarbons to a cracker, this latest initiative marks the achievement of Japan's first bio & circular cracker. The project is emblematic of Mitsui Chemicals' efforts to transition away from petroleum-based raw materials, and will help bring about a society that is not just sustainable but regenerative.



Mitsui Chemicals and KAO Corporation (Tokyo: 4452; President & CEO: HASEBE Yoshihiro) start a collaborative project for closing the loop with chemical recycling.

This project is to turn the plastic waste which KAO is involved into chemically recycled plastics in collaboration with CFP CORPORATION and Prime Polymer Co., Ltd. (Tokyo; President: FUJIMOTO Kensuke) and then, KAO adopts the chemically recycled resin for KAO products.



**Reference: BePLAYER™ and RePLAYER™**

Based on the key messages of “We explore the materials of materials” and “We’re reshaping the world from a material level,” Mitsui Chemicals has started up two new brands: BePLAYER™, which contributes to carbon neutrality through biomass, and RePLAYER™, which contributes to a circular economy through recycling. By advancing these two brands, which aim to utilize renewable resources and limit the use of stock resources, Mitsui Chemicals intends to help solve complex and intertwined social issues, and support lifestyles that go beyond sustainable to become regenerative, right from the material level.

<https://jp.mitsuichemicals.com/en/sustainability/beplayer-replayer/>