

20th December. 2022

PRESS RELEASE

Chiyoda Corporation
Taiyo Oil Company, Limited**Achieve stabilized catalytic activity at RFCC device by utilizing
EFEXIS® FCC AI Optimizer®**

Chiyoda Corporation (Chiyoda, TSE:6366; ISIN: JP3528600004) is pleased to announce that Taiyo Oil Company, Limited (Taiyo Oil) achieved stabilizing catalyst conversion by reducing the deviation between the targeted value and measured value of catalyst conversion at the RFCC unit by 20% utilizing Chiyoda's EFEXIS® FCC AI Optimizer® (FCC AIO®).

Taiyo Oil is advancing smart factory initiatives at Shikoku operations and further maximizing its profits through productivity increases. Chiyoda's support of Taiyo Oil's smart factory initiative is improving the plant's competitiveness and safety.

1. Service Outline

Solution Name : EFEXIS® FCC AI Optimizer® (FCC AIO®).

Target Device: RFCC Unit

Start Date : April 1, 2021

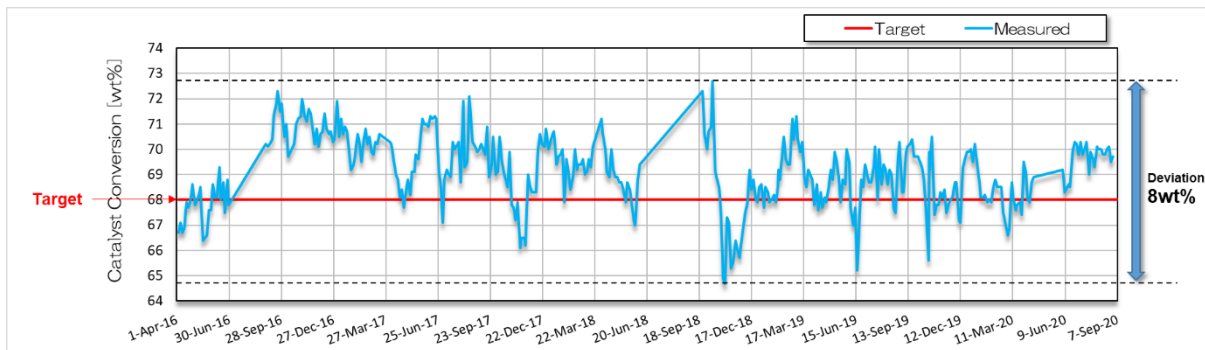
Purpose : To maximize profits through increasing productivity by achieving advanced optimization of equipment operation and yield improvement.

Background : Taiyo Oil is advancing smart factory initiatives at Shikoku operations by utilizing "smart operation management", "smart maintenance management", "smart environment management", and "smart production management and quality management" to achieve world-class competitiveness and safety in Asia. In addition, Taiyo Oil has concluded that smart factory solutions are instrumental in solving issues in Shikoku operations such as unplanned maintenance slowdowns during operation and technology transfer from a senior operator to a junior operator.

2. Achievement

Before installing the FCC AIO®, operators calculated the fresh catalyst addition rate using an empirical equation based on the measured data of catalyst conversion from the previous two-weeks. After installation, FCC AIO® enabled the real-time prediction of catalyst conversion by utilizing Artificial Intelligence (AI) incorporating the data including past measured data and current characteristics of crude oil data as inputs, thus contributing to the optimization of fresh catalyst consumption.

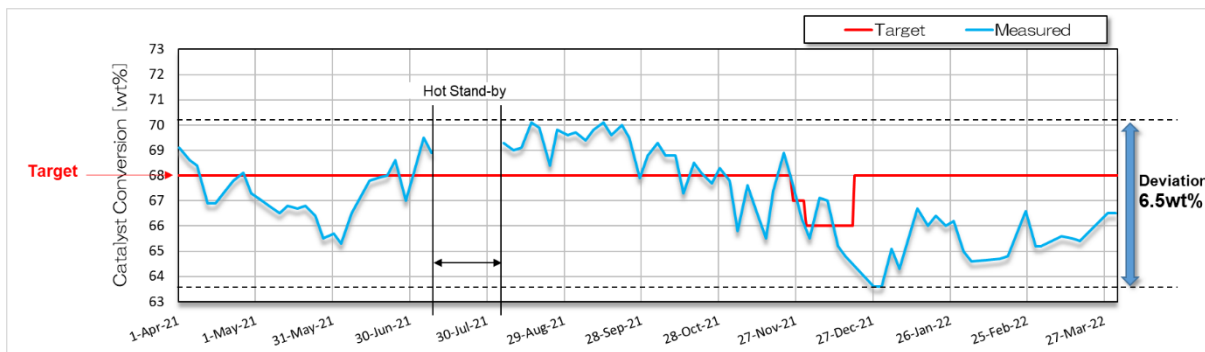
As a result of one year of operation beginning April 2021, the deviation between the measured data and the targeted catalyst conversion rate is reduced by 20% compared to before the installation, and the stabilization of catalyst conversion has been achieved.



↑Measured Catalyst Conversion Value (Before Installation of FCC AIO®)



Deviation between the targeted catalyst conversion rate and the measured value = 20% ↓



↑Measured Catalyst Conversion Value (After Installation of FCC AIO®)



↑AI System in Use



↑RFCC Unit

<Reference Information>

1. About Chiyoda

- I. Headquarters : 4-6-2, Minatomirai, Nishi-ku, Yohohama, Japan
- II. Main Business : Integrated engineering including consulting, planning, engineering, procurement, construction, commissioning and maintenance for facilities related to gas, electricity, petroleum, petrochemical, chemical, pharmaceutical, antipollution, environment, preservation and other services. Mineral resource exploration and investment, including oil and gas.
- III. Representative : Mr. Masakazu Sakakida, Chairman of the Board, President & CEO

2. About Taiyo Oil

- I. Headquarters : 15F Hibiya Kokusai Bldg., 2-2-3 Uchisaiwai-cho, Chiyoda-ku, Tokyo, Japan
- II. Main Business : • Import, export, refining, and marketing of petroleum products.
• Manufacturing, processing, and sales of petrochemical-based products, including benzene and xylene.
- III. Representative : Mr. Yutaka Oka, President & CEO

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