

September 7th, 2017

Mitsubishi Chemical concludes agreement with Air Liquide E&C to cooperate in licensing butadiene production processes

Mitsubishi Chemical Corporation

Mitsubishi Chemical Corporation (Headquarters: Chiyoda-ku, Tokyo; President: Hitoshi Ochi, hereinafter "MCC") announced that MCC and Air Liquide Engineering & Construction ^{*1} have concluded an agreement ^{*2} to cooperate in licensing processes for production of butadiene from normal butene.

MCC has a technology for converting normal butene to crude butadiene (BTcB) by oxidative dehydrogenation. This butadiene production process was developed and verified by a demonstration plant at MCC's Mizushima Plant.

Air Liquide Engineering & Construction has long-term experience in licensing and engineering of Butadiene Extraction Processes. Under this cooperation agreement, MCC and Air Liquide Engineering & Construction will license the combination of MCC's BTcB technology and Air Liquide E&C's Butadiene Extraction Technology to customers who intend to produce butadiene through the use of normal butene instead of the conventional route through Naphtha Cracking.

Butadiene is a raw material primarily used for automotive tires and other synthetic rubber products. Demand for butadiene is growing. In response to increasing demand for the material, MCC will upgrade its own technologies and actively promote the licensing business through this cooperation.

***1: About Air Liquide Engineering & Construction**

Air Liquide Engineering & Construction Air Liquide Engineering & Construction builds Air Liquide Group production units (mainly air gas separation and hydrogen production units) and provides external customers with efficient, sustainable, customized technology and process solutions. Air Liquide

Engineering & Construction's core expertise in industrial gases, energy conversion and gas purification, enables customers to optimize the use of natural resources. Air Liquide Engineering & Construction is a global licensor for butadiene extraction and possesses highly-reliable technologies including achievements in 37 references.

*2: Details of cooperation agreement

- Batch licensing a series of processes for production of butadiene from normal butene.
- Air Liquide E&C is given exclusivity to trade in Europe and Russia.



BTcB demonstration plant at MCC's Mizushima Plant



Air Liquide E&C's butadiene extraction plant

<p>For further information, please contact: Public Relations and Investor Relations Office Mitsubishi Chemical Holdings Corporation TEL: [+81] (0)3-6748-7140</p>
