



## **Mitsubishi Chemical On-Purpose Butadiene Production Process**

### Butadiene

While growth of the world economy continues, growth of firm demand of synthetic rubbers is expected along with growth of automobile production volume.

1,3-Butadiene (BD) is main raw material of synthetic rubber. BD is a byproduct from Naphtha cracker substantially. On the other hand, by light feeding in naphtha cracker and establishment of new gas cracker on North America by “Shale Gas Revolution”, relative cost competitiveness of naphtha cracker has been weakened.

Therefore, it is anticipated that construction plan of new naphtha cracker is diminished and also operation load of existing cracker is going down on a mid- and long-term basis. As a result, serious unbalance of BD supply and demand is expected. On-purpose BD production can act to control this unfavorable balance.

### Introduction of Mitsubishi Chemical BTcB process

Mitsubishi Chemical Corporation has developed a novel on-purpose butadiene production technology (abbreviation BTcB: Butene To crude Butadiene Production).

The BTcB is a proven technology with excellent reaction performance, good operability, and superior product quality in the demonstration plant.

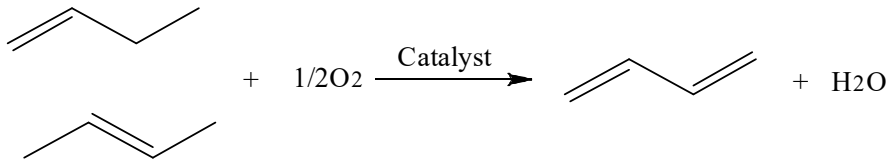
Whereas it is expected that for a medium-to-long term, butadiene supply will become very tight because gas cracker will replace steam naphtha cracker; Mitsubishi Chemical has regarded the on-purpose butadiene production technology as the key solution for this situation. Mitsubishi Chemical already has the completed Process Design Package for commercial plant and has started the worldwide licensing for this technology to all BD producers and consumers.

### Features of the BTcB process

Features of the process are as follows;

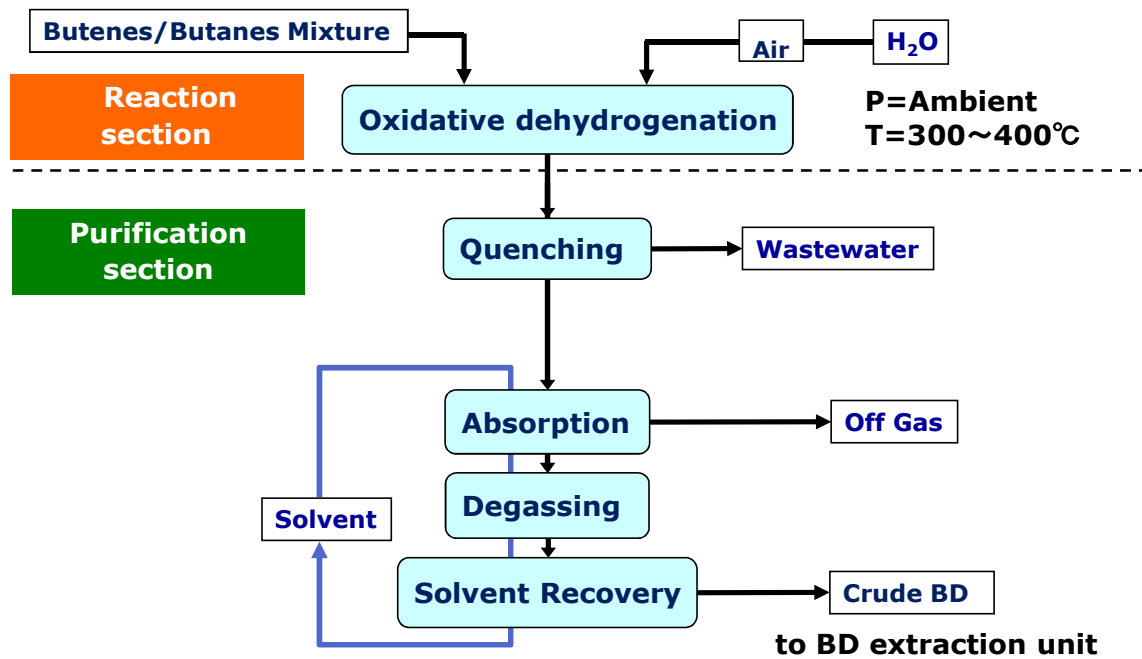
- (1) Mitsubishi's proprietary catalyst ensures both high butene conversion and butadiene selectivity to attain high yield.
- (2) Stable reaction performance is kept with longer catalyst life without regeneration
- (3) All industrial C4 hydrocarbon mixtures such as Raf-2, FCC C4, and 1-butene can be processed by the BTcB technology.

Chemistry



Main reaction is an oxidative dehydrogenation from n-butene to 1,3- butadiene.

Simplified block flow



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<https://www.m-chemical.co.jp/en/petrochem-license/>