

Mitsubishi Chemical MIBK Technology

MIBK

Methyl Isobutyl Ketone (MIBK) is used as a solvent for nitrocellulose, synthetic resin. It is also widely used as components of adhesives or paints, dewaxing solvents, deoiling agents, extractants for pharmaceuticals etc..

There are one-step method and three-step method in its production process, which are commercially produced at each company.

History of Mitsubishi MIBK Technology

MIBK technology has been developed at our Research Center since 1967. The first commercial plant was built in February 1969 at our Mizushima Plant in Japan

Advantage of Mitsubishi MIBK Technology

Advantages of Mitsubishi MIBK technology compared with other process are described in the following.

(1) Superior MIBK Quality

MIBK produced by MCC's MIBK process has superior quality especially in purity and color. It meets the industrial requirements for all MIBK application.

(2) Competitive Opex

MCC's MIBK process is based on three-step process method and the each step (reaction) is optimized at the most efficient reaction conditions. Therefore, it has the following advantages in Opex.

a) Superior MIBK Yield

Compared with conventional one-step process, MIBK yield (Acetone consumption) is much better and except small amount of Tar, it has no by-product.

b) Smaller hydrogen consumption

Hydrogen consumption is very close to the stoichiometric amount and it is smaller than conventional one-step process.

(3) Competitive Capex

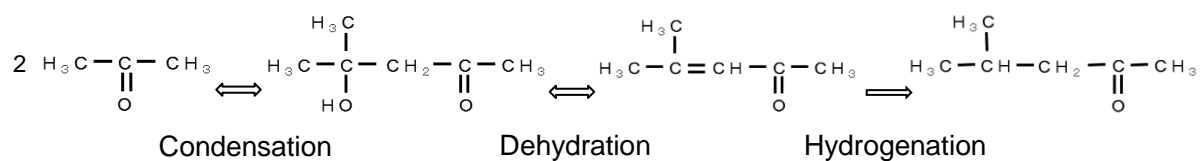
Conventional one-step process has large tubular reactor which is very expensive, but MCC's MIBK process has simple and small reactor systems. Furthermore, maximum pressure of MCC's MIBK process is around 0.8MPaG and much milder than that of One-step process. Therefore, MCC's MIBK process has even somehow longer step, the Capex is substantially equivalent to that of the one-step process.

(4) Stable and reliable process

MCC's MIBK process is incorporated with MCC's operation expertise accumulated through the long operation experience and process improvement. Thus, this stable and reliable process is the best for MIBK production.

Chemistry of this process

Main Reaction



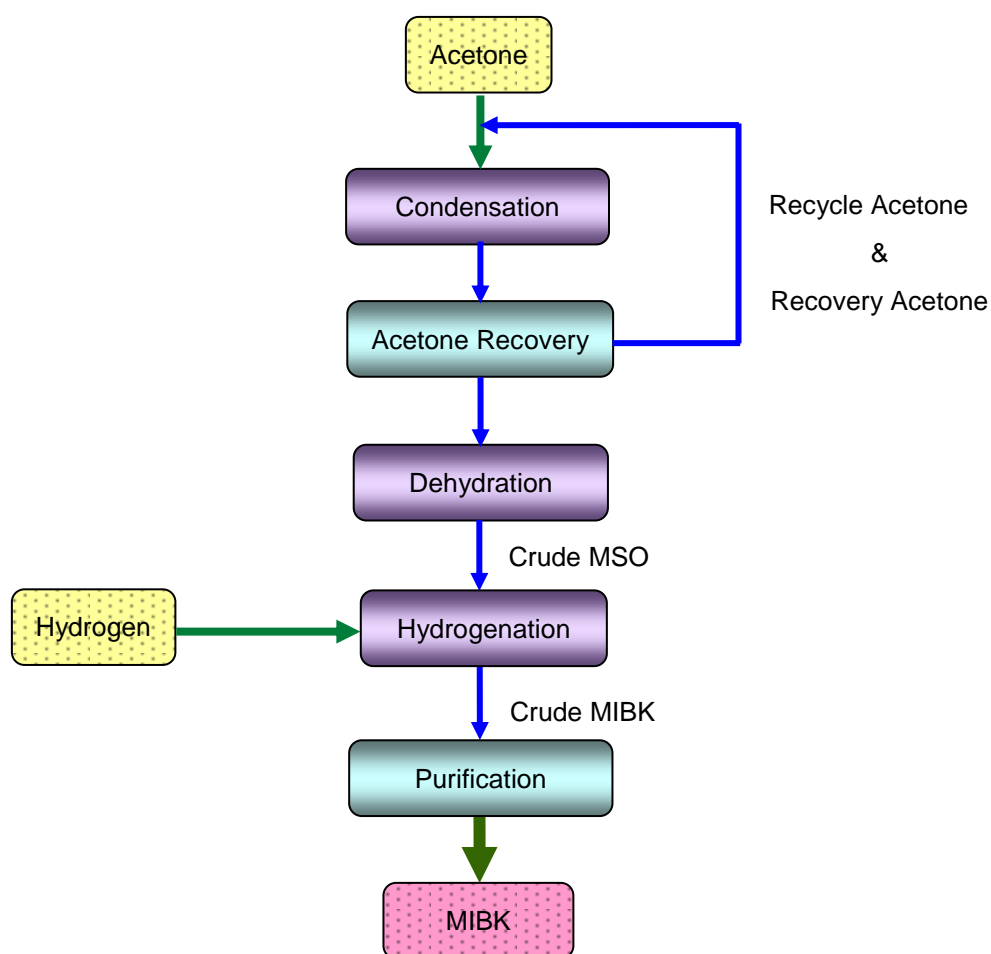
Please see below for the Block Flow Diagram.

Block Flow Diagram

This process consists of the several process sections as shown in Block Flow Diagram below.

MIBK Plant consists of the following Units.

- Condensation Reaction Unit
- Acetone Recovery Unit
- Dehydration Reaction and MSO Recovery Unit
- Hydrogenation Reaction Unit
- MIBK Purification Unit



*MSO : Mesityl Oxide

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