

Mitsubishi Chemical 1,4-Butandiol to Tetrahydrofuran Technology

Tetrahydrofuran (THF)

THF is produced by dehydrative cyclization of 14BDO (BG).

THF is utilized as pharmaceutical solvent and in the manufacture of polytetramethylene ether glycol (PTMEG).

Introduction of Mitsubishi 14BDO (BG) & THF Technology

Mitsubishi Chemical (MCC) process can manufacture 14BDO (BG) and THF by butadiene process. For more than 30 years, MCC has run 14BDO (BG) & THF business (Production and Sales). MCC currently runs 60,000 ton/year 14BDO (BG) & THF plant in Japan. MCC has developed its own State-of-Art technology and offers Process Technology together with Mitsubishi high performance catalyst. MCC has offered license to South Korea and Taiwan, and these production capacities are 50,000 ton/year ('99), 40,000 ton/year ('00), and 60,000 ton/year ('07).

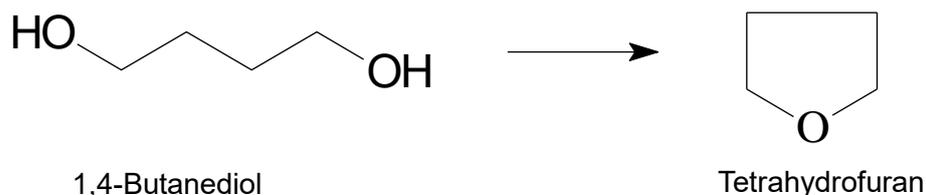
Feature of Mitsubishi 14BDO (BG) to THF process

Mitsubishi 14BDO (BG) to THF process can produce high quality THF using various 14BDO.

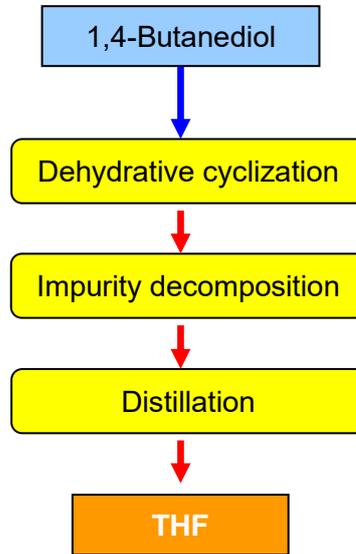
Features of this process are as follows;

- (1) Simple process & Easy operation (Continuous / Stable)
- (2) Cost competitive process
 - /Low construction cost by reactive distillation column adoption (Compact area)
 - /Inexpensive catalyst
 - /High conversion & High Selectivity
- (3) High flexibility for raw material 14BDO
- (4) High purity and Low impurity product
- (5) Easy to scale up
 - /Homogeneous liquid phase reaction
- (6) Green process
 - /Less waste oil, waste water, and waste gas

Chemistry of this process



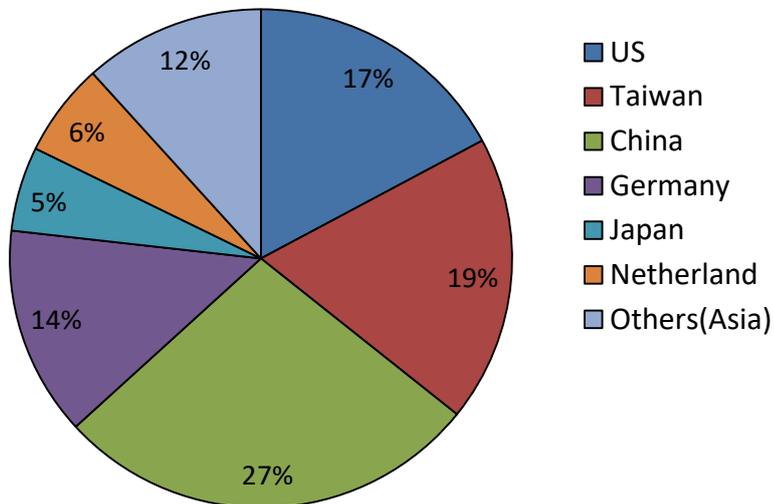
Simplified block flow



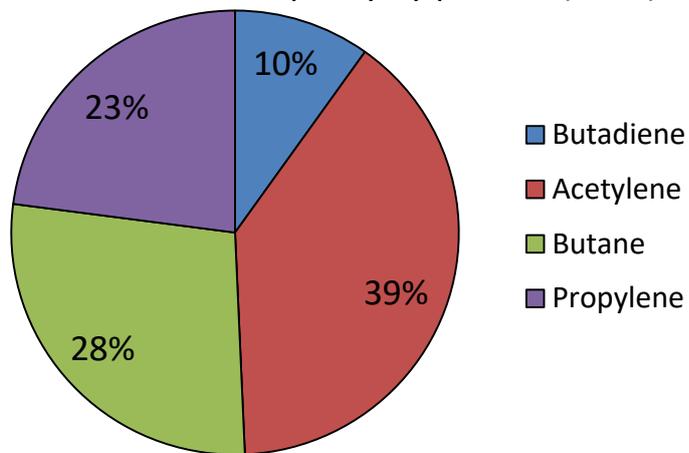
World 14BDO (BG) & THF Plant Capacity

In 2011, world 14BDO production capacity is around 2,100,000 ton/year.

World Butanediol capacity by country (2011)



World Butanediol capacity by process (2011)



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