

Tetrahydrofuran

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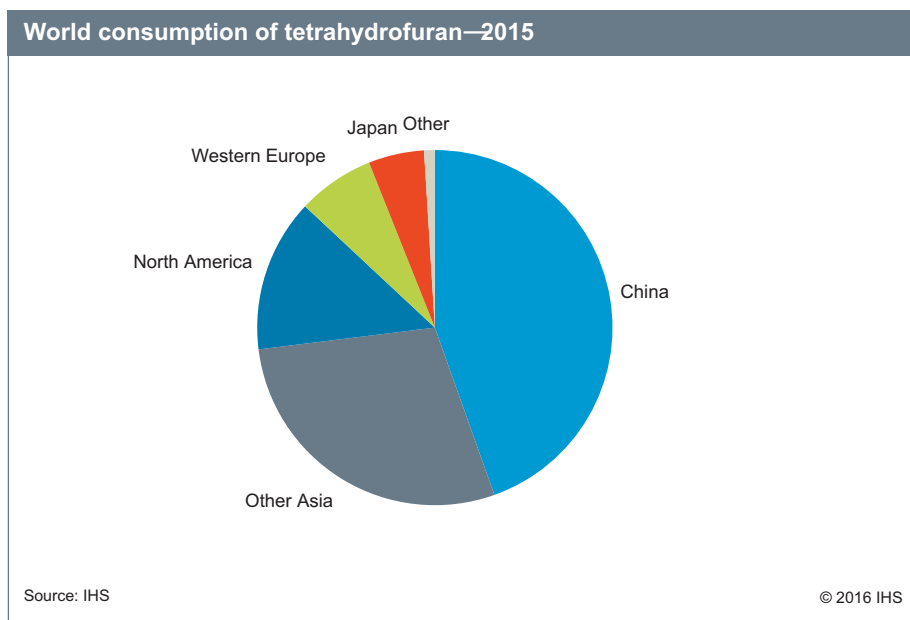
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Abstract

Tetrahydrofuran (THF) is a cyclic ether with two primary industrial uses. The major use is as a monomer in the production of polytetramethylene ether glycol (PTMEG), a component of cast and thermoplastic urethane elastomers, polyurethane stretch fibers (spandex), and high-performance copolyester-polyether elastomers (COPE). A smaller amount of THF is used as a solvent in polyvinyl chloride (PVC) cements, pharmaceuticals and coatings, precision magnetic tape manufacture, and as a reaction solvent.

Global THF capacity grew about 40% during 2012–15 but is expected to increase by only 5% by 2020. A large majority of the proposed additions will be based in China. The two largest global producers of THF are BASF and Dairen Chemical Corporation, together accounting for 47% of world capacity by the end of 2015.

The following pie chart shows world consumption of tetrahydrofuran (THF):



Chinese THF production capacity has expanded dramatically (more than 20% per year during 2005–15); even so, the country depends on imports to meet a portion of demand. In 2015, China accounted for about 44% of global THF capacity and consumption. In 2015, Asia (including China, Japan, and Other Asian countries) accounted for about 73% of world THF consumption, including captive production for PTMEG. In Asia, the portion of THF consumed for PTMEG is more than 88% of total THF demand, to supply the region's rapidly growing market for spandex.

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The rapid increase in THF production capacity in China between 2012 and 2015 caused low operating rates and falling prices in the THF market. Some producers in China were forced to shut down their plants. Although demand for THF is expected to grow at an average rate of 3.6% annually over the forecast period, low operating rates will continue through 2020.

With the start-up of new, large THF and PTMEG plants in China during 2012 through 2015, Taiwanese and Japanese THF and PTMEG exports to China declined.

In the United States, major producers are both back- and forward-integrated into 1,4-butanediol and PTMEG. THF is used primarily for PTMEG production, which accounted for about 80% of total THF consumption in 2015. Solvent production accounted for the remaining 20%. As the market is already mature, THF consumption in the United States is expected to grow annually by less than 1% on average through 2020. The growth rate will be hampered by reduced demand for PTMEG—a market that is affected by a continued decline in spandex production in the United States, despite modest growth in other markets.

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