

# Ethylene Glycols

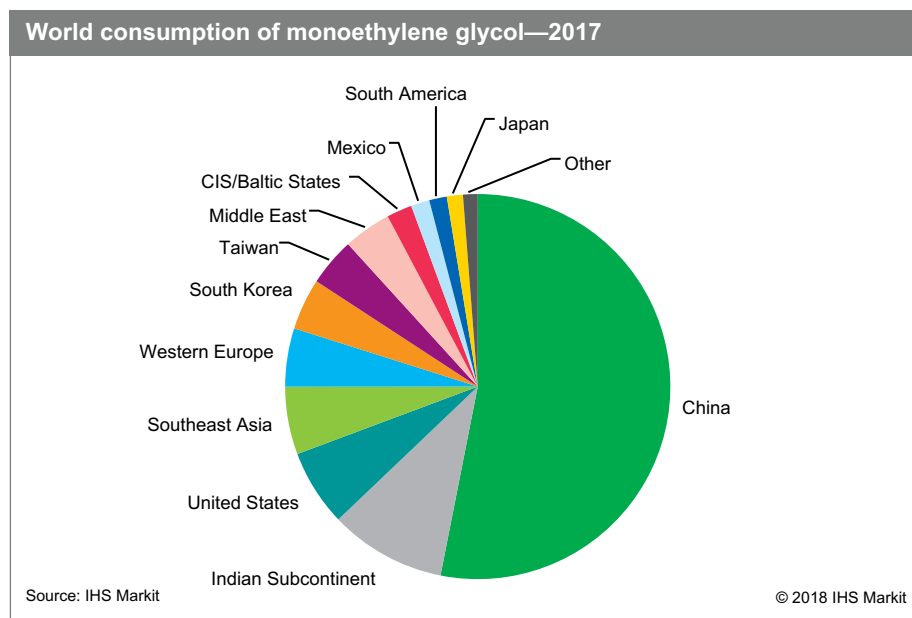
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## Abstract

In the ethylene glycols product group, monoethylene glycol (MEG) is by far the largest-volume product, accounting for more than 90% of the overall ethylene glycols market. MEG is consumed primarily in the production of polyester (polyethylene terephthalate [PET]), which is subsequently used for the production of fibers, films, solid-state resins, and other consumables. Polyester/PET applications accounted for 87% of global MEG consumption in 2017. Overall, consumption of ethylene glycols is broadly tied to the general economy.

The rapid growth of the PET market (solid-state polyester resin, polyester fibers, and polyester film) triggered a rapid rise in MEG consumption, and new capacities have been started up to serve this growing market. The share of MEG used to produce PET has grown significantly over the past three decades; PET represented just a little over 2% of the MEG market 30 years ago, but now makes up more than 87%. This market is expected to increase at an average rate of about 3.5% per year through the forecast period. Antifreeze is the second-largest application for MEG but the market is significantly smaller (7% of the total in 2017) than that for PET. MEG consumption in antifreeze is impacted by automobile production, weather conditions, and substitution by other products. This market is expected to grow at less than GDP rates during 2017–22.

The following pie chart shows world consumption of monoethylene glycol:



Over the last decade, new MEG capacities have started up in cost-advantaged regions (Middle East) or where demand has been booming (Northeast Asia), while other regions have rationalized their MEG capacity (Europe, Japan, North America).

## Contacts

Koon-Ling Ring • [Koon-Ling.ring@ihs.com](mailto:Koon-Ling.ring@ihs.com)  
 Maria deGuzman • [Maria.deguzman@ihs.com](mailto:Maria.deguzman@ihs.com)

In the Middle East, the abundance of competitively priced ethane has provided a significant cost advantage for regional ethylene and ethylene derivative manufacturers, creating the foundation for the most cost-competitive MEG production in the world. In Northeast Asia—particularly China—the development of the textile industry, as well as the growing dominance of polyester fibers within the textile fibers mix, has driven the construction of large-scale MEG plants. Together, the Middle East and Northeast Asia have accounted for more than 90% of the MEG capacity additions over the last 15 years.

A recent game changer in the MEG producing landscape has been the gradual emergence of the newer coal-to-MEG (CTM) routes. These technologies have been developed in China, where the country is capitalizing on the abundance of its coal resources to produce chemicals. Nevertheless, the operating rates of the CTM plants are still relatively low, as these units are struggling with issues of product quality and process reliability.

As with all other petrochemicals, the EG industry is cyclical, with the equilibrium between supply and demand determining the state of the industry. In times of large concomitant new capacity commissioning, operating rates generally decline (typically below 85%) and margins shrink because of increased competition among producers. As margins remain under pressure, no new capacity additions are undertaken. As demand gradually catches up with production, operating rates firm up and margins expand (during peak conditions, operating rates typically go above 86–87%). This is when the next wave of capacity is generally planned.

Peak conditions were prominent within the EG industry between 2012 and 2014. But the industry is currently facing five years of oversupply, which will inevitably drive operating rates down. These conditions are related to new capacity increasing faster than demand. The slowdown in MEG demand growth will also further exacerbate the supply glut in the industry.

MEG consumption grew at an average annual rate of 4% during 2012–17 and is forecast to slow to about 3.5% during 2017–22. This is primarily because of growing global PET polymer capacity. China will remain the dominant consumer of MEG in the medium term.

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## IHS Markit Customer Care

CustomerCare@ihsmarkit.com

Americas: +1 800 IHS CARE (+1 800 447 2273)

Europe, Middle East, and Africa: +44 (0) 1344 328 300

Asia and the Pacific Rim: +604 291 3600

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