

# Styrene

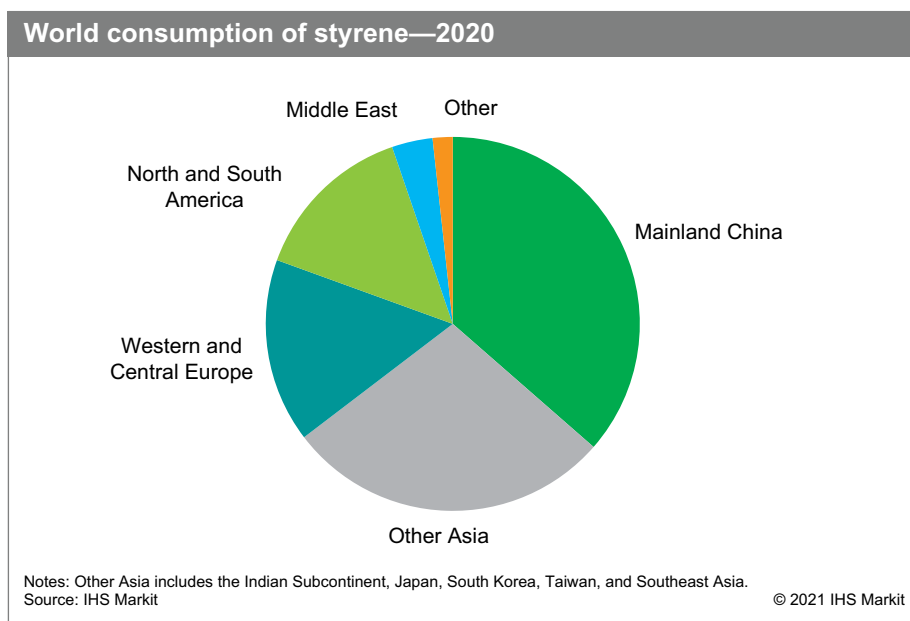
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## Abstract

Styrene monomer (SM) is a toxic liquid hydrocarbon with a strong aromatic aroma produced from ethylene and benzene. Styrene is a key intermediate material used in the manufacturing of plastics, synthetic rubber, and resins, which are found in the electronics, household, automotive, construction, healthcare, and packaging sectors. It is widely known as the precursor to polystyrene (PS) and many other copolymers. With the adverse impact on the global economy from the COVID-19 pandemic, along with a vast amount of restructuring and rationalization over the last decade, the global styrene is still in the long, slow process of recovery.

Styrene is mainly produced from ethylbenzene (EB)-based technology, with EB generated by the catalytic alkylation of benzene with ethylene. As ethylene is a gas and difficult to transport, styrene plants are typically, but not always, located close to ethylene crackers. The coproduction of styrene with propylene oxide by the PO/SM process is the second major styrene technology. In this process, EB is oxidized to its hydroperoxide, which is then reacted with propylene to produce propylene oxide and methyl benzyl alcohol. The latter product is then dehydrated to styrene.

The following chart shows world consumption of styrene:



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Polystyrene, EPS, and ABS resins are the largest markets driving styrene consumption. In 2020, these three segments contributed three-fourths of total styrene consumption. Northeast Asia is the largest consumer of styrene, representing over half of the global market, with mainland China as the key driver. Western Europe and North America are the next-largest markets, together representing about one-fourth of total styrene consumption in 2020.

Global styrene consumption grew at an average of 1.2% per year during 2015–20. Styrene demand for ABS resins was the healthiest market during these five years, with growth of 3.9% per year. Although polystyrene (general-purpose and high-impact) is the largest styrene end use, this market grew the least during this timeframe, with a minimal annual increase of 0.2% per year. Technological trends making electronics smaller, increasing recycled content, high costs, health/environmental issues, and plastic substitution have all contributed to the slowing demand growth.

**For more detailed information, see the table of contents, shown below.**

**IHS Markit's Chemical Economics Handbook – *Styrene*** is the comprehensive and trusted guide for anyone seeking information on this industry. This latest report details global and regional information, including



Global summary;  
regional coverage



Producers with  
annual capacities  
and plant sites



Production figures  
and trends



Consumption and  
forecasts by end use  
application



Manufacturing  
processes and  
environmental issues



Trade – imports  
and exports

## Key Benefits

**IHS Markit's Chemical Economics Handbook – *Styrene*** has been compiled using primary interviews with key suppliers, organizations and leading representatives from the industry in combination with IHS Markit's unparalleled access to upstream and downstream market intelligence, expert insights into industry dynamics, trade and economics.

This report can help you:

- Identify trends and driving forces influencing chemical markets
- Forecast and plan for future demand
- Understand the impact of competing materials
- Identify and evaluate potential customers and competitors
- Evaluate producers
- Track changing prices and trade movements
- Analyze the impact of feedstocks, regulations, and other factors on chemical profitability

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