

# Expandable Polystyrene

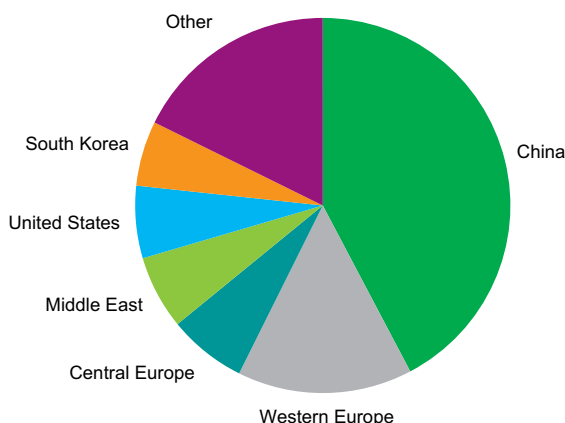
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## Abstract

Expanded polystyrene (EPS) is a rigid cellular plastic originally invented in Germany by BASF in 1950. EPS is 98% air and the rest is made from tiny, spherical EPS beads—themselves made only of carbon and hydrogen. EPS is among the largest commodity polymers produced in the world and is the second-largest styrene derivative, after polystyrene. It is a solid foam with a unique combination of characteristics, such as lightness, insulation properties, durability, and excellent processability. EPS is used in many applications, such as thermal insulation board in buildings, packaging, cushioning of valuable goods, and food packaging.

Expandable polystyrene is a bead that can be produced directly in a one-step process or produced indirectly via polystyrene beads in a two-step process. In the two-step process, EPS beads are produced from polystyrene beads made in the suspension process, which are impregnated under heat and pressure with a light hydrocarbon such as pentane. The light hydrocarbon will expand the polymer when reheated.

World consumption of expandable polystyrene—2019



Source: IHS Markit

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Building and construction is the largest demand segment, accounting for over half of global EPS demand in 2019. However, this application no longer leads the EPS industry from a growth perspective due to stagnant demand in Northeast Asia and Western Europe, coupled with an offset in stronger packaging growth. China's construction industry downturn, along with declining insulation demand, have been significant factors leading to the overall weakening of global EPS demand into the building and construction markets. Another threat that could potentially affect the future outlook is that the use of glass in China's construction industry appears to be rising due to attempts at "going green" in building and construction, which entails a reduction in the use of electricity. Since the usage of glass would allow more

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sunlight into buildings, concrete (EPS insulation) could potentially face future substitution. North America has shown some of the strongest growth in these markets; however, the region accounts for a relatively minor percentage of overall global demand.

EPS is commonly used for building and construction in molded sheets for building insulation, which are often packaged as rigid panels in both residential and commercial construction. In recent years, geofoam projects have also contributed to global EPS demand growth. Geofoam is used to provide a lightweight void fill below a highway, bridge approach, embankment, or parking lot. Over the next five years, global EPS demand for building and construction is projected to increase at a moderate rate.

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

**IHS Markit's Chemical Economics Handbook – *Expandable Polystyrene*** is the comprehensive and trusted guide for anyone seeking information into 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 – *Expandable Polystyrene*** 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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