

Merchant Hydrogen Market: Current Analysis and Forecast (2025-2033)

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Abstracts

Merchant hydrogen is hydrogen generated at central facilities and provided to external customers. It is usually delivered in gaseous or liquid form via pipelines, tube trailers, or cryogenic tankers for use by industries such as refining, chemicals, steelmaking, electronics, energy storage, and transportation. Merchant hydrogen can be manufactured through steam methane reforming, water electrolysis, or other mature processes and may be classified as grey, blue, or green based on its carbon footprint. It is in high demand due to the adoption of clean energy and global decarbonization efforts.

The Merchant Hydrogen market is set to show a growth rate of about 7.5% during the forecast period (2025-2033F). The merchant hydrogen market is expanding as the world's demand for clean and sustainable energy solutions continues to grow due to concerns about climate change and the goal of achieving net-zero emissions. Governments around the world are introducing supportive policies, subsidies, and carbon reduction mandates, which have been driving industries to switch from fossil fuels to low-carbon hydrogen. Use in refining, chemical, steel making, energy storage, and fuel cell transportation is further increasing demand. Technological innovations, declining cost of renewable energy, and large-scale infrastructure development are making hydrogen production and distribution more efficient, while increasing private and public investments are pushing the market over a high growth trajectory across the developed economies and the emerging ones.

Based on the type category, the market is categorized into gaseous merchant hydrogen, liquid merchant hydrogen, and others. Among these, gaseous merchant hydrogen has the highest market share due to its widespread application in industrial processes such as refining, chemicals, and electronics,

as well as its easier generation and distribution via compressed gas cylinders, tube trailers, and pipelines, without the need for energy-intensive liquefaction. However, the Liquid Merchant Hydrogen is expected to be the fastest-growing type because of its increased adoption in mobility and transportation.

For instance, in May 2025, Plug Power Inc., which is a global leader in comprehensive hydrogen solutions, announced that its hydrogen plant in Woodbine, Georgia, had produced 300 metric tons of liquid hydrogen in April 2025. This is the facility's highest monthly output to date and a new benchmark for the U.S. hydrogen industry. This increasing production of liquid hydrogen is further fueling the demand for liquid merchant hydrogen.

Based on the process category, the market is categorized into steam methane reforming, water electrolysis, and others. Among these, steam methane reforming currently dominates the merchant hydrogen market, due to its cost-effectiveness, technological maturity, and ability to produce hydrogen at scale using widely available natural gas. However, water electrolysis is expected to experience the fastest growth in the future, driven by the accelerating demand for low-carbon or green hydrogen produced using renewable electricity.

Based on the application category, the market is segmented into industrial applications, mobility & transportation, energy, chemicals & refining, and others. Among these, chemicals & refining is the largest segment of the merchant hydrogen market as hydrogen is an important feedstock for petroleum refining (hydrocracking, desulphurization) and ammonia/methanol. This segment has a large proven demand base, underpinned by a large-scale pipeline and onsite supply infrastructure from merchant producers. However, Mobility & Transportation is anticipated to grow at the highest rate in the forecast period, owing to the global trend toward clean fuels and fast-paced development of hydrogen fuel cell vehicles (buses, trucks, trains, and ships).

For a better understanding of the demand of merchant hydrogen, the market is analyzed based on its worldwide adoption in countries such as North America (U.S., Canada, and the Rest of North America), Europe (Germany, U.K., France, Spain, Italy, Rest of Europe), Asia-Pacific (China, Japan, India, and the Rest of Asia-Pacific), and Rest of World. Among these, the Asia-Pacific region leads the market as the region has high demand in the industry, especially in refining,

chemicals, and steel production. Along with this, the region has substantial hydrogen demand in the refinery, chemicals, and steel industries, as well as growing use in fuel cell vehicles and power generation. With several hydrogen production capacities, infrastructure, and renewable-powered green hydrogen initiatives, the region continues to establish its dominance in the global market, positioning Asia-Pacific as a strategic center for hydrogen production, consumption, and technological advancements. However, the North America region is anticipated to grow at the fastest CAGR during the forecast period, due to high policy support, technological advancements, and increased adoption in industrial and clean energy sectors.

Some major players running in the market include Linde Plc., Air Products and Chemicals, Inc., Air Liquide, FuelCell Energy, Inc., Coregas, Messer, Plug Power Inc., TotalEnergies, Uniper SE, and Iwatani Corporation.

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