

# Hydrogen Storage Market by Storage Form (Physical, Material-Based), Storage Type (Cylinder, Merchant, On-Site, On-board), Application (Chemicals, Oil Refineries, Industrial, Automotive & Transportation, Metalworking), Region - Forecast to 2030

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## Abstracts

The physical hydrogen storage market size is projected to grow from USD 1.5 billion in 2023 to USD 6.3 billion by 2030, at a CAGR of 21.5% during the forecast period. The use of hydrogen storage has increased globally due to the wide acceptability of hydrogen as an alternative energy carrier. This wide acceptance addresses environmental concerns, peak energy demand, and energy security related to the use of fossil fuels. The hydrogen storage market is competitive with many big and small players and is expected to grow at a significant rate during the forecast period.

“Physical form is the dominated segment in the hydrogen storage market in terms of both value and volume in 2022.”

The physical hydrogen storage market was estimated to be USD 1.3 billion in 2022 and is expected to reach USD 6.3 billion by 2030, at a CAGR of 21.8%. One of the primary market drivers is the increase in hydrogen demand from refineries for the desulfurization of fuels such as gasoline and diesel used in transportation applications. Further, hydrogen-powered fuel cells for cars and buses are expected to drive the market during the forecast period.

“On-board segment is expected to register the highest growth in the hydrogen storage market in terms of both value and volume during the forecast period.”

The on-board storage tank is a new concept and a type of storage, which finds

application in the transportation industry in cars, buses, and material handling equipment. The market of on-board physical hydrogen tanks is primarily driven by subsidies offered by the governments of Japan and South Korea for developing hydrogen-powered fuel cell vehicles.

“Chemicals application led the hydrogen storage market in 2022 and expected to hold its dominant position during the forecast period.”

Chemicals were the largest market in 2022 and are anticipated to grow significantly during the forecast period with a CAGR of 18.8% (in terms of value). Hydrogen storage applications in various chemical industries are ammonia, methanol, cyclohexane, hydrogen peroxide, etc. In 2021, approximately 10 million tons of hydrogen were used in the EU industry, mainly as a feedstock for producing ammonia and in the refining industry. Blue and green hydrogen are the key low-CO<sub>2</sub> alternatives that could replace the carbon-intensive grey hydrogen, representing 95% of the current hydrogen production.

The emerging hydrogen economy in the chemical industry is supported by policymaker initiatives at the European and country level, estimating a required investment of € 430 billion by 2030. Moreover, there has been an increase in the number of hydrogen projects being initiated or announced in the chemical industry. Countries outside Europe are formalizing hydrogen strategies and projects. The demand for hydrogen in China is estimated to hit 60 million tons annually by 2050.

“North America is the second-highest dominating region in hydrogen storage market in terms of both value and volume.”

The growth of the market in the region can be attributed to the rise in fuel cell applications, strict regulations regarding emission control, and the inclination to use cleaner fuels. Policies are also being framed to research and encourage the use of clean fuels such as hydrogen for various energy needs. For example, in March 2023, the Biden-Harris Administration, through the US Department of Energy (DOE), announced the availability of USD 750 million for research, development, and demonstration efforts to dramatically reduce the cost of clean hydrogen. The main goal of this initiative is to achieve a 100% clean electrical grid by 2035 and net-zero carbon emissions by 2050. The US accounts for the highest share in the North American physical hydrogen storage market because of the growing usage of hydrogen in grid infrastructure and manufacturing fertilizers and chemicals.

This study has been validated through primary interviews conducted with various industry experts globally. These primary sources have been divided into the following three categories:

By Company Type- Tier 1- 37%, Tier 2- 33%, and Tier 3- 30%

By Designation- C Level- 50%, Director Level- 20%, and Others- 30%

By Region- Europe- 50%, Asia Pacific (APAC) - 20%, North America- 15%, Middle East & Africa (MEA)-10%, Latin America-5%,

The report provides a comprehensive analysis of company profiles :

Air Liquide (France), Worthington Industries, Inc. (US), Luxfer Holdings PLC (UK), Linde plc (Germany), Chart Industries (US), INOXCVA (India), Hexagon Composites ASA (Norway), HBank Technologies Inc. (Taiwan), Pragma Industries (France), Croyolor (France).

### Research Coverage

This report covers the global hydrogen storage market and forecasts the market size until 2030. It includes the following market segmentation – by Form (Physical, Material-based), by Type (Cylinder, On-site, On-board, Merchant/Bulk), by Application (Automotive & Transportation, Chemicals, Oil Refineries, Industrial, Metalworking, and Others), and Region (North America, Europe, Asia Pacific, Middle East & Africa, Latin America). Porter's Five Forces Analysis, along with the drivers, restraints, opportunities, and challenges, have been discussed in the report. It also provides company profiles and competitive strategies adopted by the major players in the global hydrogen storage market market.

Key benefits of buying the report:

The report is expected to help market leaders/new entrants in this market in the following ways:

1. This report segments the global hydrogen storage market comprehensively. It provides the closest approximations of the revenues for the overall market and the sub-segments across different verticals and regions.

2. The report helps stakeholders understand the pulse of the hydrogen storage market and provides them with information on key market drivers, restraints, challenges, and opportunities.

3. This report will help stakeholders to understand competitors better and gain more insights to better their position in their businesses. The competitive landscape section includes the competitor ecosystem, new product development, agreement, contract, expansion, and acquisition.

Reasons to buy the report:

The report will help leaders/new entrants in this market by providing them with the closest approximations of the revenues for the overall hydrogen storage market and the sub-segments. This report will help stakeholders to understand the competitive landscape and gain more insights and position their businesses and market strategies in a better way.

The report provides insights on the following pointers:

Analysis of key drivers (Rising demand for low-emission fuels, increased hydrogen demand in other applications, use of hydrogen storage tanks for transportation, and government investments and initiatives to drive market), restraints (Limited availability of hydrogen refueling infrastructure in developed economies and less efficient in terms of power storage ), opportunities (Development of low-weight storage tank for transportation and new applications for hydrogen-powered fuel cells), and challenges (High competition from alternative fuel, high flammability, fluctuating oil prices ) influencing the growth of the hydrogen storage market

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the hydrogen storage market

Market Development: Comprehensive information about lucrative markets – the report analyses the hydrogen storage market across varied regions

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the hydrogen storage market

Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players like Air Liquide (France), Worthington Industries, Inc. (US), Luxfer Holdings PLC (UK), Linde plc (Germany), Chart Industries (US), INOXCVA (India),, among others in the hydrogen storage market

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11.2.1 CRYOFAB

TABLE 273 CRYOFAB: COMPANY OVERVIEW

11.2.2 CALVERA HYDROGEN S.A.

TABLE 274 CALVERA HYDROGEN S.A.: COMPANY OVERVIEW

11.2.3 STEELHEAD COMPOSITES, INC.

TABLE 275 STEELHEAD COMPOSITES, INC.: COMPANY OVERVIEW

11.2.4 FIBA TECHNOLOGIES, INC.

TABLE 276 FIBA TECHNOLOGIES, INC.: COMPANY OVERVIEW

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TABLE 277 GARDNER CRYOGENICS: COMPANY OVERVIEW

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11.2.7 MACOMBER CRYOGENICS

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11.2.8 BNH GAS TANKS LLP

TABLE 280 BNH GAS TANKS LLP: COMPANY OVERVIEW

11.2.9 MAHYTEC

TABLE 281 MAHYTEC: COMPANY OVERVIEW

11.2.10 NPROXX

\*Details on Business overview, Products offered, Recent developments, MnM view, Right to win, Strategic choices, and Weaknesses and competitive threats might not be

captured in case of unlisted companies.

## **12 APPENDIX**

12.1 DISCUSSION GUIDE

12.2 KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL

12.3 CUSTOMIZATION OPTIONS

12.4 RELATED REPORTS

12.5 AUTHOR DETAILS

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