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Cryogenic Gases Market Forecasts to 2032 – Global Analysis By Product (Nitrogen, Oxygen, Argon, Liquefied Natural Gas (LNG), Specialty Gases, Acetylene and Other Products), Application and By Geography

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Abstracts

According to Stratistics MRC, the Global Cryogenic Gases Market is accounted for $86.52 billion in 2025 and is expected to reach $155.14 billion by 2032 growing at a CAGR of 8.7% during the forecast period. Cryogenic gases are defined as gases at very low temperatures, usually below -150°C (-238°F), in a liquid state. These gases' capacity to be efficiently stored and transported in liquid form, enabling the handling of large quantities in small containers, makes them widely used in a variety of industries. Oxygen, nitrogen, argon, and carbon dioxide are examples of cryogenic gases that are essential to sectors like food processing, healthcare, energy, and aerospace. Moreover, the handling and storage of cryogenic gases require specialized equipment and safety measures due to their extremely low temperatures and potential hazards associated with gas expansion.

According to the British Compressed Gases Association (BCGA) is the UK's trade association for companies in the industrial, medical, and food gases industry. Established in 1971, the BCGA represents over 100 member companies and provides safety and technical support, including best practice documents.

Market Dynamics:

Driver:

Growing need in the medical and healthcare sectors

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The medical industry relies heavily on cryogenic gases, especially liquid oxygen. Liquid oxygen is essential for the treatment of respiratory disorders like asthma and chronic obstructive pulmonary disease (COPD), as well as for high-oxygen surgeries. Additionally, cryogenic gases are essential for cryopreservation, which involves keeping biological samples—such as sperm, eggs, and embryos—at extremely low temperatures. The need for cryogenic gases in healthcare is predicted to increase dramatically due to the growing global population and the rise in chronic health conditions, particularly in developing nations.

Restraint:

High costs of production and storage

Cryogenic gases are expensive to produce and store, especially during the liquefaction process. It takes sophisticated, energy-intensive cryogenic technology to liquefy gases like hydrogen, nitrogen, and oxygen. High production costs are a result of the energy consumption and upkeep of cryogenic facilities. Furthermore, materials with high insulation qualities are needed for cryogenic storage tanks, which must maintain extremely low temperatures. These materials are specialized and frequently costly. Cryogenic technologies may not be widely adopted due to these costs, particularly in sectors or areas with low financial resources.

Opportunity:

Improvements in cryogenic efficiency and technology

Cryogenic systems technological developments present a significant market expansion opportunity. The procedure is now more economical and efficient owing to advancements in cryogenic liquefaction, storage tanks, and transportation systems. Advances in insulation technologies, like vacuum-insulated panels and aero gels, contribute to better cryogenic container thermal performance, which lowers energy loss and increases storage capacity. Moreover, innovations in the cryogenic industry can help reduce the entry barrier for companies and open doors for the wider use of cryogenic gases in industries like aerospace, food, healthcare, and energy.

Threat:

Commercial barriers and geopolitical tensions

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The dynamics of international trade and geopolitical stability have a significant impact on the cryogenic gases market. Since many cryogenic gases, particularly liquid natural gas (LNG), are transported internationally, trade agreements and international relations play a crucial role in the expansion of the market. Supply shortages, increased costs, and delays in logistics can also result from trade restrictions, tariffs, or sanctions. For example, nations that restrict the export of raw materials needed for the transportation or production of cryogenic gas may cause supply chain bottlenecks worldwide. Additionally, international competition, such as increasing LNG production in the U.S., could challenge markets in regions dependent on imports.

Covid-19 Impact:

The COVID-19 pandemic significantly affected the market for cryogenic gases by upsetting supply and demand in a number of different industries. Gases like oxygen and nitrogen were in greater demand in the healthcare industry, especially for medical applications in hospitals and other healthcare facilities that treat COVID-19 patients. However, a number of industrial sectors, such as manufacturing, automotive, and aerospace, saw a decline as a result of supply chain interruptions, worldwide lockdowns, and decreased production. Furthermore, the pandemic delayed investments and new projects, which further slowed market expansion. Production schedules were impacted by a lack of raw materials and skilled labor, and delays in transportation and logistics caused the delivery of cryogenic gases to be delayed.

The liquefied natural gas (LNG) segment is expected to be the largest during the forecast period

The liquefied natural gas (LNG) segment is expected to account for the largest market share during the forecast period. The global energy transition depends heavily on LNG, a cryogenic liquid form of natural gas, because it emits fewer carbon emissions than other fossil fuels like coal and oil. It is widely used for industrial processes, energy production, and as a more environmentally friendly mode of transportation. Growing LNG import/export facilities and the rising demand for natural gas in areas without pipeline infrastructure are driving the market. Moreover, LNG's dominance is sustained by its role in energy security and its adoption across a range of industries.

The electronics & semiconductors segment is expected to have the highest CAGR during the forecast period

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Over the forecast period, the electronics & semiconductors segment is predicted to witness the highest growth rate, driven by the growing need for high-purity gases in semiconductor manufacturing processes, including helium, argon, and nitrogen. Applications such as wafer fabrication, etching, and electronic component cooling require these gases. The strong growth of this market is largely due to the quick development of semiconductor technologies, the widespread use of smart devices, and the growth of data centers. Additionally, the need for specialized cryogenic gases to support advanced manufacturing processes is anticipated to increase as the electronics industry develops, which will further propel market expansion.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share. Rapid industrialization, large investments in LNG infrastructure, and a growing focus on sustainable energy sources are the main drivers of this dominance. With rising demand in industries like healthcare, electronics, and energy, nations like China and India are leading the way. Furthermore, the region's dedication to developing infrastructure and cleaner energy sources contributes to the steady increase in demand for specialized cryogenic gases.

Region with highest CAGR:

Over the forecast period, the Middle East and Africa region is anticipated to exhibit the highest CAGR. The growing demand for cryogenic gases in refining, liquefaction, and LNG production, especially in nations like Saudi Arabia, the United Arab Emirates, and Qatar, is primarily responsible for this growth. Growth in the market is also being driven by investments in petrochemical and energy projects as well as increased infrastructure development. Moreover, the region's focus on technological developments and sustainable energy sources increases demand for cryogenic gases in a range of industrial applications.

Key players in the market

Some of the key players in Cryogenic Gases Market include Honeywell International Inc., Sumitomo Heavy Industries Ltd, Cryogas Equipment Private Limited, Air Products and Chemicals, Inc., Cryofab Inc., Nikkiso Co Ltd, Wessington Cryogenics Inc, Inoxcva Inc, Chart Industries Inc, Linde Plc, Acme Cryogenics Inc., Emerson Electric Co., S Z Enterprises, Incryo Systems Pvt. Ltd. and Air Liquide Inc.

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Key Developments:

In April 2025, Honeywell International Inc. has signed an agreement with Argent LNG to deploy Honeywell's pretreatment solutions at a liquefied natural gas (LNG) terminal to be built at Port Fourchon, Louisiana. Honeywell’s LNG pretreatment solutions help remove contaminants from natural gas, enabling facility operators to enhance production and operational efficiency.

In January 2025, Chart Industries, Inc. is pleased to announce its signing of a global master goods and services agreement with ExxonMobil. This enabling agreement sets the terms, conditions, and commercial framework for Chart to provide LNG equipment, technology, and services for ExxonMobil’s global portfolio of projects.

In August 2024, Air Products announced Air Products San Fu Co. Ltd. has signed a 10-year Power Purchase Agreement (PPA) for solar electricity with Tatung Forever Energy, a subsidiary of Tatung Company, one of Taiwan’s leading conglomerates. The strategic renewable energy agreement underscores Air Products’ long-term commitment to address climate change and support the decarbonisation and sustainable development of Taiwan’s industrial gases sector.

Products Covered:

- Nitrogen
- Oxygen
- Argon
- Liquefied Natural Gas (LNG)
- Specialty Gases
- Acetylene
- Other Products

Applications Covered:

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- Healthcare
- Oil & Gas
- Metallurgy
- Electronics & Semiconductors
- Food & Beverages
- Chemicals & Energy
- Other Applications

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe

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- Asia Pacific
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  - China
  - India
  - Australia
  - New Zealand
  - South Korea
  - Rest of Asia Pacific
- South America
  - Argentina
  - Brazil
  - Chile
  - Rest of South America
- Middle East & Africa
  - Saudi Arabia
  - UAE
  - Qatar
  - South Africa
  - Rest of Middle East & Africa

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What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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