

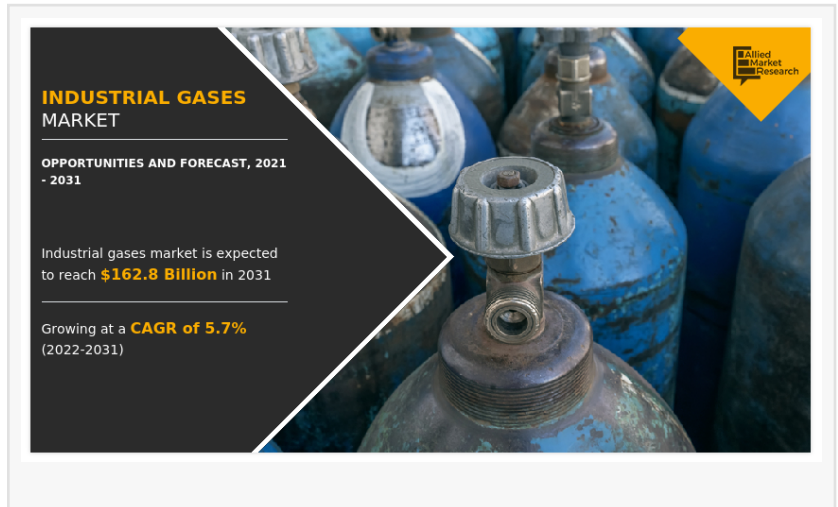
Industrial Gases Industry Outlook 2031: Rising Demand from Healthcare, Electronics, and Power

Industrial gases market is projected to reach \$162.8 billion by 2031, driven by healthcare, energy, and manufacturing demand.

WILMINGTON, DE, UNITED STATES, June 3, 2026 /EINPresswire.com/ --

The global [industrial gases market](#) is witnessing steady expansion as industries increasingly rely on specialty and atmospheric gases to improve

operational efficiency, support advanced manufacturing processes, and accelerate innovation across multiple sectors. According to a recent report published by Allied Market Research, the industrial gases market size was valued at \$93.8 billion in 2021 and is projected to reach \$162.8 billion by 2031, registering a CAGR of 5.7% from 2022 to 2031.



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Rising demand for oxygen, hydrogen, and nitrogen fuels growth in the global industrial gases market through 2031.”

Allied Market Research

Industrial gases play a critical role in modern economies by supporting industries such as healthcare, electronics, aerospace, energy, construction, food processing, mining, and chemicals. As industrialization accelerates worldwide and countries continue investing in infrastructure development and advanced technologies, demand for industrial gases is expected to rise significantly over the coming decade.

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Understanding Industrial Gases and Their Importance

Industrial gases are gaseous substances manufactured specifically for industrial and commercial applications. These gases include oxygen, nitrogen, hydrogen, carbon dioxide, and noble gases

such as helium, argon, neon, krypton, xenon, and radon. They are essential components in a wide range of industrial processes, from metal fabrication and semiconductor manufacturing to medical treatments and energy production.

Most atmospheric industrial gases are obtained through air separation processes. During production, atmospheric air is cooled to extremely low temperatures until it liquefies. The individual gas components are then separated based on their boiling points. This process enables manufacturers to produce high-purity gases suitable for various industrial applications.

The growing importance of industrial gases stems from their versatility. These gases support critical functions such as combustion enhancement, welding, cooling, preservation, chemical synthesis, power generation, and medical treatment. As technological advancement continues to transform industries, the role of industrial gases becomes increasingly important.

Healthcare Sector Emerging as a Major Growth Driver

The healthcare industry is one of the most significant contributors to industrial gases market growth. Increasing investments in healthcare infrastructure and advancements in pharmaceutical research have expanded the use of industrial gases across medical applications.

Medical-grade oxygen remains one of the most widely used gases in hospitals and healthcare facilities worldwide. In addition to oxygen, gases such as nitrous oxide, nitric oxide, helium, hydrogen, and xenon are finding increasing applications in modern healthcare treatments and pharmaceutical product development.

One of the most promising developments involves the use of industrial gases in regenerative medicine and stem cell research. Induced pluripotent stem cell technologies require highly controlled environments for cell cultivation and preservation. Carbon dioxide and liquid nitrogen are particularly important in maintaining optimal conditions for tissue engineering, cryopreservation, and cell storage applications.

As healthcare systems continue to evolve and demand for advanced therapies increases, the industrial gases market is expected to benefit substantially from rising consumption of high-purity medical gases.

Rising Industrialization and Urbanization Supporting Market Expansion

Rapid industrialization and urbanization across emerging economies are creating strong growth opportunities for the industrial gases market. Countries such as India, China, Indonesia, and Vietnam are investing heavily in manufacturing facilities, transportation infrastructure, commercial developments, and energy projects.

Industrial gases are indispensable in construction activities, metal fabrication, electronics manufacturing, and industrial processing. Growing urban populations require expanded infrastructure, which directly increases the demand for industrial gases used in welding, cutting, fabrication, and construction applications.

The continued development of industrial zones and smart cities further contributes to market expansion. As governments focus on economic development and industrial modernization, consumption of industrial gases is expected to increase significantly throughout the forecast period.

Growing Demand from Electronics and Semiconductor Manufacturing

The electronics and semiconductor sectors represent another important area of growth for the industrial gases market. High-purity gases are essential in semiconductor fabrication, display manufacturing, [solar cell production](#), and electronics assembly processes.

Nitrogen, hydrogen, argon, and other specialty gases are extensively used in semiconductor manufacturing environments where contamination control is critical. The increasing adoption of digital technologies, artificial intelligence, cloud computing, and advanced consumer electronics continues to drive semiconductor demand globally.

As countries invest in domestic semiconductor manufacturing capabilities and supply chain resilience, industrial gas suppliers are expected to benefit from increased production requirements and capacity expansions across the electronics industry.

Hydrogen Economy Creating New Growth Opportunities

One of the most significant trends shaping the industrial gases market is the growing focus on hydrogen-based energy systems. Governments and private organizations worldwide are investing heavily in hydrogen production, storage, transportation, and fuel cell technologies.

Hydrogen is increasingly viewed as a key solution for achieving decarbonization goals and reducing dependence on conventional fossil fuels. [Hydrogen fuel cells](#) provide clean energy for transportation, industrial operations, and power generation while producing minimal emissions.

Several countries have announced ambitious hydrogen roadmaps aimed at establishing large-scale hydrogen ecosystems over the coming decades. These initiatives are expected to create substantial demand for industrial gases, particularly hydrogen production and distribution infrastructure.

As the hydrogen economy continues to evolve, industrial gas manufacturers are investing in innovative technologies to support future energy requirements and capitalize on emerging

market opportunities.

Nuclear Energy Advancements Driving Noble Gas Demand

The industrial gases market is also benefiting from growing interest in advanced nuclear technologies. Research and development efforts focused on nuclear fusion and next-generation nuclear reactors are creating new applications for noble gases.

Helium, argon, xenon, and other noble gases play important roles in nuclear energy systems, scientific research, and advanced engineering applications. These gases are utilized in cooling systems, reactor operations, plasma generation, and laser ignition technologies.

Global investments in nuclear fusion research have increased substantially as governments seek sustainable long-term energy solutions. As nuclear technologies advance toward commercialization, demand for specialized industrial gases is expected to increase significantly.

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<https://www.alliedmarketresearch.com/industrial-gases-market/purchase-options>

Impact of Renewable Energy Development

The global transition toward renewable energy is positively influencing the industrial gases market. Renewable energy projects often require industrial gases throughout manufacturing, installation, and operational phases.

Green ammonia production, hydrogen generation, energy storage technologies, and renewable fuel development rely heavily on industrial gases. As renewable energy capacity expands worldwide, industrial gas suppliers are finding new opportunities to support clean energy initiatives.

Furthermore, industrial gases play an important role in carbon capture and utilization projects aimed at reducing industrial emissions. These applications are becoming increasingly important as industries work toward sustainability targets and environmental compliance requirements.

Market Segmentation Analysis

The industrial gases market is segmented based on type, end-use industry, and region.

By type, the market includes oxygen, nitrogen, carbon dioxide, hydrogen, noble gases, and other specialty gases. Among these categories, oxygen accounted for the largest market share in 2021, representing approximately 35.2% of total revenue. The extensive use of oxygen in healthcare, steel manufacturing, chemical processing, and water treatment applications continues to support its dominant position.

Nitrogen remains another highly demanded industrial gas due to its widespread use in electronics manufacturing, food preservation, pharmaceuticals, and industrial processing. Hydrogen is emerging as one of the fastest-growing segments because of increasing investments in clean energy and fuel cell technologies.

Carbon dioxide continues to maintain strong demand across beverage production, food processing, enhanced oil recovery, and industrial applications. Meanwhile, noble gases are gaining attention due to their growing utilization in aerospace, nuclear energy, scientific research, and advanced electronics manufacturing.

End-Use Industry Insights

The industrial gases market serves a diverse range of industries including healthcare, electronics, aerospace, construction, energy and power, and other industrial sectors.

The construction sector is expected to account for a significant share of the market by 2031. Rapid infrastructure development, urban expansion, and large-scale construction projects are driving demand for industrial gases used in welding, metal fabrication, and equipment manufacturing.

The healthcare sector continues to generate substantial demand due to increasing medical gas consumption and expanding healthcare infrastructure worldwide. Electronics manufacturing remains a key growth area as semiconductor production and advanced electronics applications continue to expand.

The aerospace industry is also contributing to market growth through increasing investments in satellite launches, commercial aviation, and space exploration programs that require specialized industrial gases for propulsion systems and manufacturing processes.

Regional Analysis

Asia-Pacific currently represents the largest regional market for industrial gases and is expected to maintain its leadership position throughout the forecast period. Rapid industrialization, urbanization, infrastructure development, and expanding manufacturing activities are driving strong demand across the region.

China remains a major consumer of industrial gases due to its extensive industrial base and large-scale manufacturing operations. India is also emerging as a high-growth market supported by industrial expansion, healthcare development, and government infrastructure initiatives.

South Korea is projected to register a CAGR of approximately 6.5% during the forecast period, driven by strong electronics and semiconductor manufacturing activities. Japan is also expected

to maintain steady growth, supported by advanced manufacturing industries and technological innovation.

North America continues to represent a significant market due to robust demand from healthcare, aerospace, energy, and industrial manufacturing sectors. Europe remains an important region, benefiting from renewable energy investments, advanced industrial infrastructure, and sustainability-focused policies.

Impact of COVID-19 on the Industrial Gases Market

The COVID-19 pandemic initially created significant disruptions across global industries, negatively impacting industrial production and supply chains. Lockdowns, transportation restrictions, and temporary shutdowns of manufacturing facilities reduced demand for industrial gases across several sectors.

Industrial operations slowed considerably during the peak of the pandemic, affecting consumption patterns and delaying investment activities. Construction projects, manufacturing operations, and industrial facilities experienced interruptions that impacted overall market performance.

However, the healthcare sector generated unprecedented demand for medical oxygen during the pandemic. The urgent need for respiratory support equipment and medical treatment significantly increased oxygen consumption worldwide.

Following the rollout of vaccination programs and economic recovery initiatives, industrial activity gradually resumed. Post-pandemic recovery has strengthened demand across manufacturing, construction, energy, and healthcare sectors, supporting renewed growth in the industrial gases market.

Competitive Landscape

The industrial gases market remains highly competitive, with leading companies focusing on capacity expansion, technological innovation, strategic partnerships, and acquisitions. Major participants include Southern Gas Ltd., Universal Industrial Gases Inc., Gulf Cryo, International Industrial Gases Limited, Goyal MG Gases Pvt. Ltd., Ellenbarrie Industrial Gases, Praxair Technology Inc., Linde plc, MVS Engineering Pvt. Ltd., National Gases Ltd., Air Liquide S.A., Air Products & Chemicals, Messer Group, Taiyo Nippon Sanso, and BASF.

These companies are actively investing in advanced production technologies, distribution networks, and sustainable gas solutions to strengthen their market positions and meet evolving customer requirements.

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Conclusion

The global industrial gases market is poised for sustained growth through 2031, supported by increasing demand from healthcare, electronics, construction, aerospace, and energy sectors. Rising investments in hydrogen technologies, nuclear energy research, renewable energy projects, and advanced manufacturing are creating substantial opportunities for industry participants.

Although challenges such as economic uncertainties and supply chain disruptions remain, the long-term outlook for the industrial gases market remains highly positive. With Asia-Pacific leading global demand and emerging technologies creating new applications, industrial gases will continue to play a vital role in supporting industrial development, energy transformation, and technological innovation worldwide.

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