

China Industrial & Specialty Gases Market By Product (Oxygen, Nitrogen, Hydrogen, Carbon Dioxide, Argon, Others), By Mode of Distribution (Tonnage/Gaseous, Bulk, Cylinder), By Region, Competition, Forecast and Opportunities, 2018-2028F

Market Report | 2023-11-07 | 70 pages | TechSci Research

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Report description:

China Industrial & Specialty Gases Market is anticipated to project robust growth in the forecast period. The market for gases in China is characterized by a wide range of varieties. It encompasses not only basic industrial gases like nitrogen, oxygen, and carbon dioxide, but also specialty gases such as ultra-high-purity helium and argon. These gases find diverse applications across multiple sectors - from manufacturing processes to medical treatments, from food preservation to pollution control.

In recent years, there has been a notable increase in investment in China's industrial gas market. This trend is particularly evident in the production of industrial synthetic gases like hydrogen and acetylene, driven by the growing demand for cleaner energy sources. Hydrogen, in particular, has emerged as a promising area for future growth, as the country strives to embrace more sustainable energy solutions.

Furthermore, the rare gas industry in China is gaining significant attention. These gases play a crucial role in high-tech industries, and China's ability to produce and supply them could have a substantial impact on the global market. As the demand for rare gases continues to rise, China's position as a key player in the global industrial landscape is further solidified.

However, the growth of the gases market in China is not without its challenges. Regulatory compliance, safety standards, and environmental concerns are crucial issues that need to be addressed. Additionally, the fluctuating prices of raw materials pose a potential risk to market stability.

Despite these challenges, the outlook for China's industrial and specialty gases market remains highly promising. The increasing demand from various industries, coupled with the government's supportive policies, is expected to drive the market forward. As China continues to cement its position as a global industrial powerhouse, the growth and development of its industrial and specialty gases market are poised to follow suit.

Key Market Drivers

Growing Demand of Industrial & Specialty Gases in Food & Beverage Industry

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Industrial and specialty gases play a critical role in the food and beverage industry, providing essential support in various stages of food processing and packaging. For instance, gases like nitrogen and carbon dioxide are commonly used in modified atmosphere packaging (MAP), which helps to improve the shelf life of food products by creating an optimal environment. By controlling the gas composition inside the packaging, MAP can slow down the growth of spoilage-causing microorganisms and preserve the freshness of the food.

In addition to MAP, gases such as oxygen and carbon dioxide are also widely utilized in beverage carbonation. Through a carefully controlled process, these gases are introduced into beverages to create the desired level of fizziness, enhancing the overall sensory experience for consumers.

The increasing consumer demand for high-quality, packaged, and processed food products is one of the key drivers behind the growth of the industrial and specialty gases market in the food and beverage sector. As consumers become more health-conscious and seek fresher and longer-lasting food options, the use of specialty gases in food preservation and packaging has gained prominence. These gases enable the extension of shelf life without compromising the taste, texture, or nutritional value of the products.

Furthermore, the growing demand for advanced packaging solutions is another factor contributing to the market growth. Specialty gases are pivotal in creating innovative packaging solutions that maintain the freshness, quality, and visual appeal of food and beverages. From modified atmosphere packaging to vacuum sealing, specialty gases offer versatile options to meet the evolving needs of the industry.

In conclusion, the increasing demand for industrial and specialty gases in the food and beverage industry is a significant driving force behind China's industrial and specialty gases market. As consumer preferences continue to evolve and the need for advanced packaging solutions rises, this trend is expected to persist, fostering further growth in this dynamic and essential market segment.

Growing Demand of Industrial & Specialty Gases in Automotive Industry

Industrial and specialty gases play a crucial and irreplaceable role in the automotive industry. These gases are not only used in various stages of vehicle manufacturing, such as welding, heat treatment, and airbag inflation but also serve quality control purposes, including leak detection in vehicle components, using specialty gases like argon and helium.

The automotive industry's rapid expansion in China has been a primary driver for the increased demand for industrial and specialty gases. As one of the largest car markets globally, China's automotive industry requires significant quantities of these gases to support various applications. This rising demand is further fueled by advancements in automotive manufacturing technology, which have created a surge in the need for industrial and specialty gases.

Moreover, China's strong emphasis on green transportation and the subsequent growth in electric vehicle (EV) production have significantly contributed to the market's expansion. The production of EV batteries, which is a crucial aspect of electric vehicle manufacturing, requires the use of specialty gases. Given that China is the largest manufacturer of EVs worldwide, the demand for these gases is projected to continue rising.

In conclusion, the escalating demand for industrial and specialty gases in the automotive industry is a key driver of China's industrial and specialty gases market. As the automotive industry continues to expand and evolve, this trend is expected to persist, fueling further growth in the industrial and specialty gases market. The continuous evolution of automotive technologies, the increasing adoption of electric vehicles, and the government's focus on green transportation will all contribute to the sustained growth of the industrial and specialty gases market in China.

Key Market Challenges

Volatility in Energy Prices

Energy is not only a vital input in the production of industrial and specialty gases, but it also plays a crucial role in their overall cost structure. Fluctuations in energy prices can have a direct and significant impact on the production costs of these gases. For instance, hydrogen, which is a key industrial gas. Its production requires substantial amounts of energy, and any increase in energy prices would inevitably escalate the production costs. These higher costs may then be passed on to consumers, potentially leading to a reduction in demand.

Similarly, specialty gases like argon and helium, which find applications in diverse sectors such as automotive and electronics industries, are also produced through energy-intensive processes. Consequently, any volatility in energy prices can introduce

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unpredictability in their production costs. This, in turn, poses challenges for manufacturers when it comes to budgeting and financial forecasting.

With its rapidly growing economy, China's energy demand is also on the rise. This increasing demand has the potential to raise energy prices and further contribute to price volatility. Moreover, geopolitical conflicts, like those involving Taiwan, can lead to global energy supply disruptions, which in turn can result in price increases.

Key Market Trends

Growing Advancements in Gas Technologies

In recent years, the gas industry has witnessed numerous technological advancements that are revolutionizing the production, storage, and transportation of gases. These advancements include digitalization, automation, Artificial Intelligence (AI), Big Data analytics, and the Internet of Things (IoT).

Digitalization and automation have paved the way for real-time monitoring and control of various processes, resulting in increased efficiency and reduced operational costs. AI and Big Data analytics are being utilized to forecast demand, optimize supply chains, and improve decision-making.

On the other hand, the IoT is facilitating continuous monitoring of system status, enabling the early identification of potential issues before they escalate into major problems. These advancements collectively contribute significantly to the growth of the industrial and specialty gases market in China.

Notably, technological advancements have played a pivotal role in the oil and gas industry, particularly in the extraction and production of natural gas. Advanced software solutions, such as electric monitoring and drone technology, are making natural gas exploration and production safer and more efficient.

Furthermore, these technological breakthroughs are effectively reducing the costs associated with the liquification and regasification of liquefied natural gas (LNG), thereby making transportation easier and more economical. This is particularly relevant for China, which stands as one of the largest importers of LNG globally. With continuous technological advancements, the gas industry is poised for further growth and innovation in the coming years.

Segmental Insights

Product Insights

Based on the category of product, the oxygen segment emerged as the dominant player in the Chinese market for industrial & specialty gases in 2022. In the industrial sector, oxygen plays a crucial role in various applications, particularly in steel melting and fabrication processes. The steel industry heavily relies on oxygen to enhance the combustion efficiency in blast furnaces, resulting in improved productivity and reduced emission of nitrogen oxides. Additionally, oxygen is utilized to replace air in steel-making furnaces, further optimizing the steel production process.

Moreover, the healthcare sector significantly contributes to the high demand for oxygen. It is an indispensable resource in medical treatments, including anesthesia administration, life support systems, and respiratory therapies. With the continuous growth of healthcare expenditure worldwide, the demand for medical oxygen is projected to witness a further increase, highlighting its critical importance in ensuring quality patient care.

While the electronics specialty gas market predominantly relies on foreign lead suppliers, oxygen still holds a significant share. In the manufacturing of semiconductors, oxygen is extensively used for etching silicon substrates, enabling the precise fabrication and production of high-quality electronic components.

The multifaceted applications of oxygen across various industries underscore its vital role as a versatile and essential resource, contributing to the advancement and efficiency of numerous processes and technologies.

Mode of Distribution Insights

The tonnage/gaseous segment is projected to experience rapid growth during the forecast period. Tonnage gases, such as nitrogen, oxygen, and hydrogen, are extensively used in various industries, including steel, chemical, oil and gas, and electronics. For instance, nitrogen and hydrogen are critical in the petroleum refining process, where nitrogen is used for purging and hydrogen for desulfurization, while oxygen is vital for steel production, enabling efficient combustion in blast furnaces. This widespread use drives the high demand for tonnage gases, leading to their dominance in the market.

Gaseous products, especially when produced and supplied in bulk (tonnage), are often more cost-effective than their liquid counterparts. This is due to lower production, storage, and transportation costs, as well as reduced energy consumption. The

cost-effectiveness of tonnage gases makes them an attractive choice for industries, further contributing to their market dominance.

China's rapid industrialization has led to the growth of several end-user industries, such as the automobile and steel sectors, which heavily rely on industrial gases. The burgeoning growth of these industries has, in turn, fueled the demand for tonnage gases, as they are crucial for various processes, including heat treatment, welding, and metal fabrication. As China continues to expand its manufacturing capabilities, the demand for tonnage gases is expected to rise significantly, reinforcing their position as key components of the industrial landscape.

Regional Insights

South Central emerged as the dominant player in the China Industrial & Specialty Gases Market in 2022, holding the largest market share in terms of value. In South Central China, a sprawling region known for its heavy industries, such as steel, automobile manufacturing, electronics, and petrochemicals, there is a significant demand for industrial and specialty gases. These industries, acting as major consumers, are instrumental in driving the growth and development of the region.

One of the key factors contributing to the region's prominence is its strategic location. Situated in close proximity to both inland and coastal areas, South Central China offers seamless accessibility and facilitates the efficient distribution of gases. This geographical advantage not only enables the smooth transportation of gases but also ensures easy access to raw material sources and end-user industries.

Moreover, South Central China boasts advanced infrastructure, including an extensive network of pipelines, which greatly enhances the efficiency of gas transportation. This well-established infrastructure guarantees a consistent and reliable supply of gases to industries, further reinforcing the region's dominance in the market.

Key Market Players

□□Linde AG

□□Yingde Gases Group Co., Ltd.

□□Taiyo Nippon Sanso Corporation

□□Shanghai Chinllenge Gases Co., Ltd.

□□Hangzhou Hangyang Co., Ltd.

Report Scope:

In this report, the China Industrial & Specialty Gases Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

□□China Industrial & Specialty Gases Market, By Product:

o□Oxygen

o□Nitrogen

o□Hydrogen

o□Carbon Dioxide

o□Argon

o□Others

□□China Industrial & Specialty Gases Market, By Mode of Distribution:

o□Tonnage/Gaseous

o□Bulk

o□Cylinder

□□China Industrial & Specialty Gases Market, By Region:

o□East

o□North & North-East

o□Southwest

o□South Central

o□Northwest

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the China Industrial & Specialty Gases Market.

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Available Customizations:

China Industrial & Specialty Gases Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

□ Detailed analysis and profiling of additional market players (up to five).

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