

# Australia Specialty Gases Market By Type (High purity, Nobel, Carbon, Halogen, Others), By Application (Manufacturing, Electronics, Healthcare, Others), By Region, Competition, Forecast and Opportunities, 2019-2029F

Market Report | 2024-12-20 | 85 pages | TechSci Research

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## **Report description:**

Australia Specialty Gases Market has valued at USD 115.86 million in 2023 and and is expected to reach USD 149.68 million by 2029 with a CAGR of 4.56% through 2029. Specialty gases play a pivotal role across diverse industries, providing high-purity gases with minimal impurities essential for applications demanding precision and reliability, spanning from healthcare to manufacturing.

In Australia, the specialty gases sector is witnessing notable expansion, propelled by several factors. A key catalyst is the escalating demand for specialty gases in research and development, analytics, and calibration endeavors. As Australian industries endeavor to innovate and optimize their operations, the requirement for top-tier specialty gases is projected to escalate. The growth of Australia's specialty gases market is bolstered by local manufacturing and distribution networks. Entities like Coregas contribute significantly to market expansion by locally producing gases and distributing them across Australia and New Zealand. This localized production fosters a dependable supply chain, a critical aspect for industries heavily reliant on these gases.

#### Key Market Drivers

## Growing Demand of Specialty Gases in Electronic Industry

Specialty gases, renowned for their exceptional purity, play a vital role across numerous sectors, including healthcare, manufacturing, and notably, the electronics industry. With their indispensable role in various electronics manufacturing processes such as semiconductor fabrication, printed circuit board production, and cleaning and etching of electronic devices, these gases have become indispensable components.

As the electronics industry continues to progress and innovate, the demand for specialty gases is witnessing a steady increase. They not only enhance product quality but also elevate safety standards and optimize overall performance, thus becoming essential elements in this continuously evolving sector.

In Australia, the electronics industry has undergone remarkable growth in recent years, driven by advancements in technology and heightened consumer demand for electronic products. With the expansion of this sector comes a heightened requirement for specialty gases. Their integral role in the production of semiconductors, flat panel displays, photovoltaic cells, and LEDs contributes significantly to driving market growth. These gases are employed across various stages of electronic device manufacturing, encompassing deposition, etching, and chamber cleaning processes, thereby ensuring the high quality and reliability of the end products.

## Growing Demand of Specialty Gases in Healthcare Industry

Specialty gases, distinguished by their exceptional purity and stringent processing standards, play an indispensable role across various industries. There has been a significant upsurge in the demand for specialty gases within the healthcare sector, particularly evident in Australia, in recent years. This surge has precipitated substantial growth within the Australian specialty gases market.

Specialty gases serve a myriad of critical functions spanning patient care, diagnostics, and therapeutic interventions. From oxygen therapy and anesthesia administration to the sterilization of medical equipment and laboratory analyses, these gases directly impact patient well-being and safety. The purity and precision of specialty gases are of utmost importance. Advancements in medical technology have expanded the utility of specialty gases within healthcare settings. For instance, nitric oxide is now employed in treating newborns with respiratory distress, while helium finds application in MRI scanners for cooling purposes.

Australia's healthcare industry enjoys global recognition for its robustness and innovation. With a steadfast commitment to delivering high-quality patient care and pioneering medical research, the demand for specialty gases continues to rise steadily. This escalating demand within Australia's healthcare sector is driving the growth trajectory of the specialty gases market. Companies operating in this domain are allocating substantial resources to research and development endeavors aimed at producing top-tier gases that meet the rigorous requirements of the healthcare sector.

Innovation in Research and Development

Innovation in research and development (R&D) is a significant driver in the growth of the Australian specialty gases market. As industries, particularly healthcare, electronics, and renewable energy, evolve, there is a growing need for new and improved specialty gases with higher purity and tailored properties. Australian companies and research institutions are heavily investing in R&D to develop advanced gas technologies, which are crucial for ensuring high-quality production and meeting stringent industry standards.

In the healthcare sector, for example, R&D efforts have led to the expanded use of gases like nitric oxide, which is now commonly used to treat neonatal respiratory distress. Additionally, researchers are exploring the potential of gases such as xenon for neuroprotection in traumatic brain injuries and other neurological conditions. These innovations not only improve patient outcomes but also contribute to the demand for more specialized, high-purity gases. Research into gas mixtures and their precise applications in diagnostics and therapies is also a key focus area, enhancing the capabilities of healthcare systems across the country.

In the electronics industry, R&D is focusing on developing new specialty gases for advanced semiconductor manufacturing processes, including etching, deposition, and cleaning. With Australia's growing involvement in the semiconductor and renewable energy industries, specialty gases like silane and nitrogen trifluoride are crucial for producing high-performance components. For instance, R&D activity is the Australian government's commitment to clean energy technologies, which has led to significant advancements in gases used in photovoltaic cell manufacturing. Companies in Australia are also investing in the development of next-generation materials and processes that require highly specialized gases for optimal performance. Through continuous R&D, Australia is positioning itself as a leader in the innovation of specialty gases, enhancing its competitive edge in key industries. Key Market Challenges

#### Rise in Environmental Concerns

Laboratories rely on specialty gases for analytical instruments, calibration standards, and research purposes. These gases are integral to techniques such as gas chromatography and mass spectrometry, ensuring precise and dependable results. The production, handling, and disposal of specialty gases can have notable environmental repercussions. For instance, certain gases like sulfur hexafluoride (SF6) are potent greenhouse gases with a global warming potential thousands of times greater than

carbon dioxide. Mishandling can result in their release into the atmosphere, exacerbating global warming.

Australia, like many nations, is committed to minimizing its environmental impact. The government has ratified various international agreements, including the Paris Agreement, pledging to reduce greenhouse gas emissions by 26-28% below 2005 levels by 2030.

Stringent regulations have been enacted by the Australian government concerning the production, usage, and disposal of environmentally harmful gases, including certain specialty gases. These regulations, driven by environmental concerns and regulatory pressures, pose significant challenges to the specialty gases market in Australia. Companies are compelled to invest in technologies and practices aimed at mitigating the environmental impact of their products. This encompasses the development of eco-friendly production methods, implementing robust storage and transportation measures to prevent leaks, and ensuring safe and environmentally responsible disposal practices.

While these investments entail substantial costs, they are imperative for the market's long-term sustainability. Failure to address environmental concerns may result in regulatory sanctions, reputational damage, and loss of customers who prioritize sustainability. It is imperative for companies operating in the specialty gases sector to embrace sustainable practices and contribute to a greener future.

#### Key Market Trends

#### Focus on Renewable Energy

The focus on renewable energy has become a significant trend in Australia's specialty gases market, particularly with the increasing adoption of solar and wind energy technologies. Specialty gases like argon and helium play a critical role in the production and maintenance of photovoltaic (solar) cells and wind turbine components. Argon, for instance, is used as a shielding gas in welding processes for assembling wind turbines, ensuring high-quality joints and durability. Similarly, helium is employed in leak detection during the manufacturing and maintenance of solar panels, ensuring the integrity of these critical components. Australia's commitment to renewable energy has accelerated this trend, with the government setting ambitious targets to achieve net-zero emissions by 2050. Policies such as the Renewable Energy Target (RET) and substantial investments in solar energy projects have boosted demand for specialty gases in solar cell production. For example, argon and nitrogen are integral in creating the inert atmospheres required for high-purity silicon wafer production, a key component of photovoltaic cells. Recent advancements in green hydrogen technology have also influenced the specialty gases market. Australia's hydrogen industry roadmap emphasizes the use of hydrogen as a renewable energy source, requiring high-purity specialty gases for hydrogen production, storage, and transportation. This has further driven innovation and demand in the specialty gases sector. The collaborations between gas manufacturers and renewable energy companies are fostering innovation in the efficient use of specialty gases. Companies are developing customized gas solutions to support renewable energy projects, ensuring sustainable and efficient operations. For example, research projects supported by the Australian Renewable Energy Agency (ARENA) have explored the use of specialty gases in optimizing solar panel efficiency and longevity. These developments underline the critical role of specialty gases in supporting Australia's transition to a renewable energy-driven future. Surge in Technological Advancements

In recent times, Australia's specialty gases sector has witnessed a notable upsurge in technological advancements, marking a significant transformation across various facets of the industry. Technological breakthroughs are propelling substantial progress in the production, refinement, and packaging of specialty gases. Sophisticated manufacturing methodologies such as cryogenic distillation and membrane separation are facilitating the generation of gases with heightened purity levels and meticulously tailored compositions. These advancements not only elevate the caliber and dependability of specialty gases but also streamline production processes, thereby curbing environmental impacts.

The integration of digitalization and automation technologies marks a substantial stride forward in optimizing gas production and distribution processes within the specialty gases industry. Through the utilization of cutting-edge digital tools and automated systems, gas suppliers are attaining unparalleled levels of operational efficiency and resource utilization.

At the core of this technological evolution are real-time monitoring and control systems, which furnish gas suppliers with invaluable insights into production processes and distribution networks. These systems enable suppliers to perpetually monitor essential performance indicators, including gas flow rates, pressure levels, and temperature conditions, facilitating proactive adjustments and optimization in real-time.

# Segmental Insights

Application Insights

The healthcare segment is projected to experience rapid growth during the forecast period. Australia's thriving medical tourism industry, propelled by its esteemed reputation for delivering top-tier healthcare services, has become a beacon for international patients seeking specialized medical treatments and procedures. This influx of overseas patients has not only fortified the nation's healthcare sector but has also paved the way for expansion in the specialty gases market. Healthcare providers throughout Australia are strategically positioned to address the diverse needs of both local and international patients, offering advanced medical gases and state-of-the-art technologies to ensure superior patient care and treatment outcomes. With cutting-edge medical facilities and highly skilled healthcare professionals, Australia's healthcare landscape is adept at meeting the requirements of a global patient base.

# **Regional Insights**

Australia Capital Territory & New South Wales emerged as the dominant player in the Australia Specialty Gases Market in 2023, holding the largest market share in terms of value. The strong presence of esteemed research institutions and academic hubs in Australia Capital Territory (ACT) and New South Wales (NSW) provides an ideal environment for collaborative ventures between academia and industry. This partnership acts as a driving force for the development and enhancement of groundbreaking technologies and uses for specialty gases. Through the collaboration of researchers, scientists, and industry experts, this cooperative ecosystem fosters innovation and expedites the assimilation of specialty gases into forefront research endeavors and burgeoning industries.

Key Market Players

Linde Material Handling Pty Limited

□□Supagas Holdings Pty Ltd.

Coregas Pty Ltd

Air Liquide Australia Limited

□ BASF Australia Ltd

Report Scope:

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

□ Australia Specialty Gases Market, By Type:

- o High purity
- o Nobel
- o Carbon
- o Halogen
- o Others

□ Australia Specialty Gases Market, By Application:

- o Manufacturing
- o Electronics
- o Healthcare

o Others

□ Australia Specialty Gases Market, By Region:

- o Australia Capital Territory & New South Wales
- o Northern Territory & Southern Australia
- o Western Australia
- o Queensland
- o Victoria & Tasmania
- Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Australia Specialty Gases Market. Available Customizations:

Australia Specialty Gases Market report with the given market data, TechSci 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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