Air Separation Unit Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 150 pages | Mordor Intelligence

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Report description:

The market for air separation units is expected to reach around USD 5.04 billion by the end of the year and is projected to grow at a CAGR of 4.82% during the forecast period.

The COVID-19 pandemic had a profound impact on supply chain operations, with closure of industrial and manufacturing facilities due to the lockdowns enforced all over the world to control the virus. However, the market is expected to grow at a steady pace during the forecast period.

Key Highlights
In the medium term, factors such as increasing demand for industrial gases, spurred by the growth in steel and process industries are likely to drive the market growth during the forecast period.
On the flip side, since the cost to supply high-purity industrial gases is huge, several operating companies are shifting toward alternate air separation techniques such as pressure swing adsorption (PSA) as a cost-effective solution that may restrain the market for air separation units.
Countries such as Saudi Arabia, the United Arab Emirates, and South Africa have been witnessing a high growth rate of urbanization and industrialization activities and are expected to continue with a similar pattern, which is expected to offer growth opportunities for air separation unit players, particularly from sectors, such as refinery, manufacturing, healthcare, electronics (solar PV wafers in particular), and food and beverages, among others. Therefore, the increase in industrial development activities in the Middle-Eastn region presents a good market opportunity for air separation unit market players in the coming years.
Asia-Pacific is expected to dominate the market during the forecast period, with the majority of the demand coming from countries like India, China, etc.

Air Separation Unit Market Trends

Iron and Steel End-user Segment to Witness Significant Demand

The iron and steel industry is one of the major consumers of ASUs, as steel production requires massive amounts of oxygen, most of which is sourced from the air using ASU technology.
It is estimated that more than half of the global steel production is done using the basic oxygen process (BOP), which uses pure oxygen to convert a charge of liquid blast-furnace iron and scrap into steel. Hence, to cater to the oxygen demand, most steel plants install large ASUs, which form a critical part of plant operations.
The iron and steel industry is one of the drivers of modern industrial growth, and the production of steel has been growing steadily over the past decade. According to the World Steel Association, the global production of steel reached 1951 million metric ton during 2021, displaying a Y-o-Y growth rate of 3.77%. Over the period of 2012-2021, global steel production has grown at a CAGR of 2.52% Globally, the top five largest producers of steel are China (1032.8 MT), India (118.1), Japan (96.3 MT), United States (86 MT) and Russia (76 MT), accounting for nearly 72% of the global production.
As all steel plants require large-scale ASUs, and these units are highly energy-intensive, the optimization of energy consumption is a major challenge. Additionally, maintaining the purity of oxygen is also a major challenge, as different purities are required for steel production.
The demand for steel is expected to be highest among developing economies, such as China, India, Africa and the ASEAN countries, which are industrializing fast and investing heavily in large-scale infrastructure projects.
In March 2022, INOX Air Products Ltd announced that it had won a contract to construct India's largest Greenfield Oxygen Plant in India at Steel Authority of India's (SAIL) Bokaro plant in Jharkhand. Being built at a total investment of INR 750 crore, the plant will generate 2150 tonnes per day (TPD) of Industrial Gases, including 2000 TPD of Gaseous Oxygen, 150 TPD of Liquid Oxygen, 1200 TPD of Gaseous Nitrogen & 100 TPD of Argon.
Previously, in February 2021, INOX Air was selected by Arcelor Mittal l Nippon Steel India Ltd to set up its 5th cryogenic air separation unit at Hazira Steel Plant. The ASU, being built at an investment of INR 300 crores, would have the capacity to generate 700 TPD of Gaseous Oxygen and 300 TPD of Gaseous Nitrogen along with other liquid gases.
Such large investments and projects for the construction of new ASUs in steel plants is expected to drive the iron and steel segment of the Global ASU market during the forecast period.
Therefore, based on the above-mentioned factors, the iron and steel end-user segment is expected to witness significant demand for the global air separation unit market during the forecast period.

Asia-Pacific Expected to Dominate the Market

Asia-Pacific accounted for the largest share of the air separation unit market and is expected to continue its dominance during the forecast period as well.
China is the world's second-largest oil consumer, but the sixth-largest producer of oil. It imports nearly 50% of its hydrocarbon demand and to reduce dependence on energy imports and improve energy security, China has been trying to maximize its shale potential by exploiting its domestic reserves across various inland shale basins, such as the Sichuan basin. China's shale production grew by nearly 30% Y-o-Y from 2019 to 2020, producing nearly 20 billion cubic metres (bcm) of shale gas in 2020.
The shale revolution in China has resulted in an unprecedented petrochemical capacity creation and expansion. As a result, China has made significant investments in its refining and petrochemical infrastructure, as it tries to placate domestic demand and reduce the petrochemical process for domestic industries. Due to an ever-rising demand for plastics and other petrochemicals from industries such as food packaging, clothing, cosmetics and fertilizers, refining capacity has to be increased to handle the

growing demand.
China has been constructing new refineries and upgrading and adding capacity in older refineries. As of October 2021, nearly 1.8 million bpd of new refining capacity is under-construction in China, with most of them expected to come online during 2022. Additionally, expansion and upgradation operations are ongoing at multiple Chinese refineries.
China is expected to lead the market in Asia-Pacific due to its significant growth in electronics manufacturing (like solar PV etc.) domestically, increasing refining and petrochemical capacity, and increasing healthcare expenditure, which has significantly increased the demand for industrial gases.
In February 2021, Air Liquide unveiled plans for its largest air separation unit in China. The company will invest approximately EUR 100 million in a brand-new air separation unit in Zhangjiagang City, China, with a daily capacity of 3,800 tons of oxygen. This facility is likely to supply krypton and xenon to the growing electronics, as well as other air gases for industrial merchant activities.
Moreover, India aims to achieve 300 million metric tons of steel annually by 2025-2030. The increasing steel production in India is expected to increase the demand for industrial gasses, particularly oxygen, which in turn is likely to drive the demand for air separation units in the country during the forecast period.
In February 2022, Linde India Limited entered into a 15-year agreement with ESL Steel Limited for the supply of about 800 mt per day of oxygen and 900 mt per day of nitrogen to the steel mill. Linde India will set up an on-site air separation unit at ESL Limited's steel mill at Bokaro.
In January 2022, Air Liquide announced an investment of about INR 350 crore in a new air separation unit dedicated to industrial merchant activities in Kosi, Uttar Pradesh, India. This unit will have a production capacity of 350 tons per day with a maximum of 300 tons of oxygen. The plant is likely to be operational by the end of 2023.
As a result, the increasing uptake of air separation units from the iron and steel, oil and gas, and chemical end-user segments, majorly from China and India, is expected to increase the demand for air separation units in the region.

Air Separation Unit Market Competitor Analysis

The air separation unit market is moderately fragmented. Some of the major players in the market (in no particular order) include Linde AG, Messer Group GmbH, SIAD Macchine Impianti SpA, Air Products and Chemicals Inc., and Air Liquide SA.

Additional Benefits:

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