

Middle East & Africa Oxy-fuel Combustion Technology Market Size and Forecast (2021 - 2031)

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Abstracts

The Middle East and Africa oxy-fuel combustion technology market is projected to grow significantly, with an expected market size of approximately US\$ 93.0 million by 2031, up from US\$ 54.1 million in 2024. This growth translates to a compound annual growth rate (CAGR) of 8.3% from 2025 to 2031, indicating a robust demand for advanced combustion technologies in the region.

Executive Summary and Market Analysis

The market for oxy-fuel combustion technology in the Middle East and Africa is primarily segmented into key regions: South Africa, Saudi Arabia, the United Arab Emirates (UAE), and the Rest of the Middle East and Africa (MEA). The UAE government is actively pursuing advanced technological solutions to enhance the country's infrastructure while adhering to environmental regulations. This commitment is evident in the initiatives aimed at reducing greenhouse gas emissions, which have become a priority for the region, especially highlighted during the third summit of the Organization of the Petroleum Exporting Countries (OPEC) in Saudi Arabia. The summit underscored the importance of addressing climate change, prompting oil and gas companies in the region to adopt oxy-fuel combustion technologies that facilitate lower carbon emissions.

Strategic Insights

Market Segmentation Analysis

The Middle East and Africa oxy-fuel combustion technology market is categorized by offerings and industry applications. In terms of offerings, the market is divided into Solutions and Services, with the Solutions segment leading the market in 2024. When

analyzed by industry, the market encompasses sectors such as Oil and Gas, Power Generation, Manufacturing, Metals and Mining, among others, with Power Generation being the dominant segment in 2024.

Market Outlook

A significant opportunity within the oxy-fuel combustion technology market lies in hydrogen-oxy-fuel hybrid systems. As industries strive for decarbonization and enhanced energy efficiency, these hybrid systems are gaining traction. They combine the advantages of hydrogen combustion with traditional oxy-fuel technology, resulting in cleaner and more efficient energy production. In these systems, hydrogen is combusted in a pure oxygen environment, similar to conventional oxy-fuel combustion, producing water vapor as the primary combustion product. This process drastically reduces harmful emissions, including carbon dioxide (CO₂) and nitrogen oxides (NO_x), compared to traditional fossil fuel combustion.

The integration of hydrogen into oxy-fuel combustion not only improves energy efficiency but also enhances thermal efficiencies due to hydrogen's high energy content per unit mass. This characteristic is particularly beneficial for energy-intensive industries such as cement and steel production. Many countries are modernizing their infrastructure to support the adoption of hydrogen-oxy-fuel hybrid systems, aiming to decarbonize operations in sectors like manufacturing, steel fabrication, and transportation.

Country Insights

The market is further segmented by country, with Saudi Arabia, the UAE, South Africa, and the Rest of the MEA being the primary regions of focus. In 2024, Saudi Arabia held the largest market share. The country faces a pressing challenge with rising CO₂ emissions, primarily from oil and natural gas combustion. To combat this issue, the Saudi government has set ambitious targets, aiming for a carbon capture capacity of approximately 44 million metric tons annually by 2035 and achieving net-zero emissions by 2060. In line with these goals, Saudi Aramco has partnered with the energy ministry to establish a carbon capture and storage (CCS) hub in Jubail, expected to be operational by 2027, with a storage capacity of around 9 million metric tons of CO₂. Additionally, the Uthmaniyah CO₂-Enhanced Oil Recovery (EOR) Demonstration Project is underway, focusing on capturing, compressing, and dehydrating CO₂ from the Hawiyah Natural Gas Liquids (NGL) Recovery Plant.

Company Profiles

Key players in the Middle East and Africa oxy-fuel combustion technology market include prominent companies such as Air Liquide, Encon Thermal Engineers Pvt Ltd, Falorni Gianfranco SRL, Jupiter Oxygen Corp, Linde Plc, Heidelberg Materials AG, ESA SpA, Messer SE & Co KGaA, Babcock & Wilcox Enterprises Inc, and Air Products and Chemicals Inc. These companies are employing various strategies, including expansion, product innovation, and mergers and acquisitions, to enhance their product offerings and increase their market share.

In conclusion, the Middle East and Africa oxy-fuel combustion technology market is poised for significant growth, driven by the need for cleaner energy solutions and the adoption of innovative technologies aimed at reducing carbon emissions. The focus on hydrogen-oxy-fuel hybrid systems and the commitment of regional governments to environmental sustainability will further propel the market forward.

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