

Scandium - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2024 - 2029

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Report description:

The Scandium Market size is estimated at USD 646.89 million in 2024, and is expected to reach USD 992.57 million by 2029, growing at a CAGR of 8.94% during the forecast period (2024-2029).

The COVID-19 pandemic negatively impacted the scandium market. Due to the lockdown, major end-user segments such as aerospace and defense, ceramics, and electronics were suspended during COVID-19, reducing scandium usage. After 2020, the market expanded steadily because of the continued activities in major end-user segments.

Key Highlights

- The major factors driving the market's growth are the increasing usage of solid oxide fuel cells (SOFCs) and the growing demand for aluminum-scandium alloys in the aerospace and defense industries.
- But the high price of scandium and the fact that it isn't always available are likely to keep the studied market from growing.
- Still, growing technology for storing energy and possible uses in the auto industry are likely to give the market opportunities in the years to come.
- During the forecast period, the United States is expected to lead and see the most growth.

Scandium Market Trends

Solid Oxide Fuel Cells (SOFCs) Segment to Dominate the Market

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- SOFCs use a solid oxide material called an electrolyte, which helps move negative oxygen ions from the cathode to the anode. In these cells, the anode and cathode are made from special inks that cover the electrolyte. Therefore, SOFCs do not require any precious metal, corrosive acids, or molten material.
- Electrolyte materials are subjected to high temperatures to catalyze natural gas conversion to energy. However, the high temperature for the catalyzing conversion process can lead to the quick degradation of ceramic electrolytes, adding to the capital and maintenance costs.
- Using scandium in solid electrolytes helps the system work at much lower temperatures than traditional SOFCs. So, the use of scandium helped lower the cost of SOFCs, which made them easier to use for power generation in many places.
- As electricity prices go up, people will need to use more environmentally friendly ways to make power, which is likely to create a lot of market opportunities for SOFCs and make scandium even more important.
- Due to growing environmental concerns regarding traditional energy sources like coal and natural gas, solid oxide fuel cells are likely to see increased demand in the future.
- SOFCs are being used more and more in transportation, industrial equipment, power generation, cooling, disaster relief, and places where there is no grid connection.
- A solid oxide fuel cell (SOFC) is an electrochemical device that helps make electricity directly by combining an oxidant and a fuel across an ionic conducting oxide electrolyte. Also, GOV.UK says that in November 2022, all electricity suppliers in the United Kingdom used about 24.3 terawatt-hours of electricity each month. This trend is expected to support the study market.
- Taking all of these things into account, the solid oxide fuel cell market is likely to see a big increase in demand for scandium in the near future.

The United States to Dominate the Market

- The United States was one of the first countries to use fuel cells commercially. A growing number of end users, particularly in the auto industry, and government funding made this possible.
- SOFC-based fuel cells could be used in light-duty vehicles and warehouse forklifts to replace internal combustion engines. This would make the vehicles more fuel-efficient and help reach goals of cutting oil use and pollution from the transportation sector. It is likely to lead to a big increase in the number of fuel cells used in the country.
- The United States has the largest aerospace industry in the world. According to the FAA, the number of aircraft in the United States increased in 2022, with estimates indicating that the general aviation fleet was 204,590 in 2022, up from 204,405 in 2021. It is likely to increase scandium usage in the country.
- The main application for scandium is in the form of an alloy with aluminum. Due to their excellent durability-to-weight ratio and corrosion-resistant performance, scandium-aluminum alloys are widely employed in the construction of airframes, thinner fuselages, welded gas tanks, dashboard panel structures, etc. These alloys allow for weight reductions of about 15-20%, which improves the fuel economy of airplanes.
- One of the largest fleets in the world is in the United States, which also has the largest aviation market in North America. Strong exports of aerospace components to countries like France, China, and Germany and healthy consumer spending in the United States have driven the manufacturing operations in the aerospace sector. This is anticipated to have a beneficial impact on the country's scandium market.
- The Federal Aviation Administration (FAA) projects that the commercial fleet in the United States will expand by an average annual growth rate of 2% per year to 8,756 in 2041. As a result, there will likely be more demand for scandium parts, which are used in a number of aircraft applications.
- Additionally, industry contracts and agreements are spurring the production of commercial and defense aircraft. For instance, in August 2022, a modification (P00215) to the contract for KC-46A Air Force Production Lot 8 aircraft, subscriptions, and licenses was given to the Boeing Company. This also includes 15 extra KC-46A planes. 100% of the contract's foreign military sales to Israel are valued at USD 886,242,124.

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- In the 2022 military budget, the US government set aside USD 768.2 billion for national defense projects. This is a 2% increase over the first budget proposal from the Biden administration and a sign that the aerospace industry is using more scandium-based materials.
- All factors above are likely to fuel scandium market growth in the United States over the forecast period.

Scandium Industry Overview

The scandium market is partially consolidated in nature. Some of the market's major players (not in any particular order) include Hunan Rare Earth Metal Materials Research Institute Co., Ltd., China Metallurgical Group Corporation (MCC Group), Sunrise Energy Metals Limited, Longbai Group Co., Ltd., and Henan Rongjia Scandium Vanadium Technology Co., Ltd., among others.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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