Thermal Barrier Coatings 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 Thermal Barrier Coatings Market was valued at over USD 950 million in 2021, and the market is projected to register a CAGR of greater than 4% during the forecast period (2022-2027).

Nationwide lockdown around the world, disruption in manufacturing activities and supply chains, production halts, and labor unavailability due to the COVID-19 outbreak negatively impacted the market. However, the conditions started recovering in 2021, thereby restoring the growth trajectory of the market studied during the forecast period.

Key Highlights
Over the short term, owing to the growth of vapor deposition technologies, the demand for the market studied is likely to rise in the coming years. Moreover, the shift from coal to natural gas-fired power generation and the development of new power plant infrastructure are also expected to enhance the demand for the thermal barrier coatings market in the years to come.
On the flip side, high raw material price volatility is expected to restrain the demand for the market studied.
The technological advancements in the end-user market and increasing applications in the aerospace sector are likely to act as opportunities for the market studied.
North America has dominated the global market. However, Asia-Pacific is likely to witness the highest growth rate during the forecast period.

Thermal Barrier Coatings Market Trends

Aerospace Segment to Dominate the Market

Thermal barrier coatings are commonly used to protect nickel-based superalloys from both melting and thermal cycling in aviation turbines. Combined with cool airflow, Thermal barrier coatings increase the allowable gas temperature above that of the superalloy melting point.
Thermal barrier coatings reduce the temperature of the blade alloy and protect against oxidation and hot corrosion from high-temperature gas, thus, increasing turbine performance, life expectancy, and efficiency.
The increasing aircraft fleet and the rising defense expenditure increased the production of aircraft across the world, creating immense demand for coatings like TBCs for the protection of engines and turbines.
According to Boeing Commercial Market Outlook 2020-2039, 43,110 aircraft are expected to be delivered during 2020-2039. Of this regional flight, deliveries are 2,430 units, single-aisle are 32,270 units, widebody aircraft at 7,480 units, and 930 freighter deliveries.
China increased its 2021 defense budget by 6.8% to CNY 1.35 trillion (USD 209 billion) at a quicker pace than the previous year's growth. Also, by 2025, China's total number of aircraft will likely reach 5,343, according to the reports issued by the Aviation Industry Development Research Center of China, thus augmenting the market studied.
In India, there are 153 airports currently, and the number is anticipated to increase to 190-200 by FY 2040, and the rising fleet size is expected to escalate the number of airplanes to 1,100 by 2027.?
Overall, the market for thermal barrier coatings in the aerospace industry is expected to recover gradually through the forecast period and grow consistently.

North American Region to Dominate the Market

The North American region is dominating the thermal barrier coatings market, owing to the significant demand from the various end-user industries such as aerospace, power, and oil and gas. Moreover, the United States has the largest share in the market studied. Apart from the United States, Canada and Mexico also have a depictable share in the thermal barrier coatings market.
The United States has the largest aerospace industry in the world. According to the Federal Aviation Administration (FAA), the total commercial aircraft fleet is expected to reach 8,270 in 2037, owing to the growth in air cargo. Also, the US mainliner carrier fleet is expected to grow at a rate of 54 aircraft per year due to the existing fleet getting older.
Strong exports of aerospace components to countries, such as France, China, and Germany, along with robust consumer spending in the United States, have been driving the manufacturing activities in the aerospace industry, which can induce a positive momentum for the market.
In the 2022 defense budget, the US Government allocated USD 768.2 billion for national defense programs, which is about a 2% increase from the Biden administration's original budget request, registering a growing usage of thermal barrier coatings in the sector.
According to EIA, the US crude oil production fell below 11.6 million b/d in December 2021, a decline of 0.2 million b/d from November 2021. It further forecasts that production will rise to an average of 12.0 million b/d in 2022 and then record a high production on an annual-average basis of 13.0 million b/d in 2023. These factors will likely augment the market studied.
Moreover, Canada ranks first in civil flight simulation, third in civil engine production, and fourth in civil aircraft production. It is the only nationally ranked in the top five of all the key categories. The Canadian aerospace industry exports over 70% of its products to over 190 countries across six continents.
Hence, all the aforementioned factors are expected to significantly impact the demand for the thermal barrier coatings market in the region over the forecast period.

Thermal Barrier Coatings Market Competitor Analysis

The thermal barrier coatings market is fragmented in nature, with the presence of a large number of global as well as regional service providers occupying an insignificant share in the market. Some of the key players in the market (not in any particular order) include Honeywell International Inc., OC Oerlikon Management AG, Praxair S.T. Technology Inc. (Linde PLC), Chromalloy Gas Turbine LLC, and Saint-Gobain.

Additional Benefits:

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

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