

Advanced Ceramics Market by Material (Alumina, Zirconia, Titanate, Silicon Carbide), Application, End-Use Industry (Electrical & Electronics, Transportation, Medical, Defense & Security, Environmental, Chemical) and Region - Global Forecast to 2027

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Report description:

The global advanced ceramics market size is estimated to be USD 10.9 billion in 2022 and projected to reach USD 13.9 billion by 2027, at a CAGR of 5.1%. Advanced ceramics have superior corrosion resistance compared to other materials (such as aluminum and steel), resulting in decreased maintenance and other costs for aircraft, automobiles, and armors. This makes these ceramics a favorable material for various end-use industries such as aerospace, energy & power, automotive, electronics, and military & defense.

Compared to other conventional alloys and metals, the thermal expansion of advanced ceramics is much lower when placed under the same environmental conditions. This factor has driven the use of these ceramics in different end-use industries. In addition, the high resistance to corrosion, temperature, low-wear process, and reduction in emissions provided by advanced ceramics are fueling the demand globally. These ceramics retain their shape and size even when they are used in extreme temperature applications, such as in gas turbines, aircraft engines, and fuel cells, providing dimensional stability and increasing safety. Advanced ceramics have superior wear resistance, high-temperature strength, and chemical stability in comparison to metals. These ceramics have replaced metals in many applications, such as cutting tools, bearings, filters, and coatings. They are also being used in niche applications in automobiles such as turbochargers, glow plugs, and combustion chambers. The increased use of advanced ceramics instead of metals in various end-use industries is driving the market globally. Advanced ceramics have replaced plastics in many applications, such as miniature components used in electronic circuits; instruments used in the pharmaceutical industry; and scalpels, tubes, and crucibles used in the medical industry. Advanced ceramics are expected to completely replace metals and plastics in many applications in the near future.

"Silicon carbide ceramics: The fastest-growing segment of the advanced ceramics market, by material"

Silicon carbide ceramic is the most corrosion-resistant, lightweight, and hardest ceramic material which can maintains its strength

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at up to 2,552°F. Silicon carbide ceramics have numerous application areas, and they are also ideal for use in demanding conditions in various sectors such as nuclear energy, space technology, automobile, marine engineering, and electronics & electrical. It is toxicologically safe and can be used in the food & beverage industry as well. It is considered to be the most promising material for manufacturing rocket nozzles, gas turbines, and engine components in the aerospace and automotive sector.

"Monolithic ceramics accounted for the largest market share amongst other applications in the advanced ceramics market"

Monolithic ceramics are highly reliable owing to their high durability, and protection against higher temperature. These properties help increase the component's life hence monolithic ceramics are used in industries that involve high-temperature operations. These ceramics are primarily used in end-use industries, such as aerospace, automotive, power generation, transportation, military & defense, medical, and electrical & electronics.

"Electrical & electronics is expected to be the largest advanced ceramics consumer amongst all end-use industries"

Advanced ceramics possess excellent properties including good insulation, piezoelectric & dielectric properties, and superconductivity, which makes them highly preferred in the electronics industry. Ceramic components are essential in products such as smartphones, computers, televisions, and automotive electronics. Advanced ceramics are used in manufacturing various electronics components, including capacitors, insulators, integrated circuit packages, piezoelectric components, and others.

"APAC : The largest and fastest growing region in advanced ceramics market"

APAC was the largest market for advanced ceramics in 2021. The electrical & electronics sector in the region has experienced healthy growth in the past couple of years. Countries such as China, South Korea, and Japan are leading in electronics and semiconductor industry. Rising population, rapid industrialization, increasing electrification, growth in disposable income, technological advancements, and rising urbanization are driving the APAC advanced ceramics market.

Breakdown of primaries

The study contains insights from various industry experts, ranging from component suppliers to Tier 1 companies and OEMs. The break-up of the primaries is as follows:

- By Company Type: Tier 1 - 25%, Tier 2 - 50%, and Tier 3 - 25%

- By Designation: C Level- 20%, D-level - 30%, And Other Level - 50%

- By Region: North America - 20%, APAC - 25%, Europe - 30%, Middle East & Africa - 10%, South America-15%.

The advanced ceramics market is dominated by a few globally established players such as Kyocera Corporation (Japan), CeramTec (US), CoorsTek (US), Saint-Gobain Ceramic Materials (US), Morgan Advanced Materials (UK), and 3M (US).

Research Coverage:

The report covers the advanced ceramics market and forecasts its size, by volume and value, based on region (Asia Pacific, Europe, North America, South America, and Middle East & Africa), material (alumina, silicon carbide, titanate, zirconia), application (monolithic ceramic, ceramic coating, ceramic matrix composites, ceramic filters), end-use industry (electrical & electronics, transportation, medical, environmental, chemical, defense & security).

The report also provides a comprehensive review of market drivers, restraints, opportunities, and challenges in the advanced ceramics market. The report also covers qualitative aspects in addition to the quantitative aspects of these markets.

Key Benefits of Buying the Report:

The report will help the leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall market and the sub-segments. This report will help stakeholders understand the competitive landscape and gain more insights to better position their businesses and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the advanced ceramics market and provides them information on key market drivers, restraints, challenges, and opportunities.

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