

Global Protonic Ceramic Fuel Cell (PCFC) Market Research Report 2022 Professional Edition

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Abstracts

The global Protonic Ceramic Fuel Cell (PCFC) market was valued at 938.02 Million USD in 2021 and will grow with a CAGR of 40.25% from 2021 to 2027, based on HNY Research newly published report.

The prime objective of this report is to provide the insights on the post COVID-19 impact which will help market players in this field evaluate their business approaches. Also, this report covers market segmentation by major market vendors, types, applications/end users and geography(North America, East Asia, Europe, South Asia, Southeast Asia, Middle East, Africa, Oceania, South America).

A protonic ceramic fuel cell (PCFC) is a fuel cell based on a ceramic electrolyte material that exhibits high protonic conductivity at elevated temperatures. PCFCs share the thermal and kinetic advantages of high temperature operation at 700 degrees Celsius with molten carbonate and solid oxide fuel cells, while exhibiting all of the intrinsic benefits of proton conduction in proton exchange membrane fuel cells (PEMFC) and phosphoric acid fuel cells (PAFC). The high operating temperature is necessary to achieve very high electrical fuel efficiency with hydrocarbon fuels. PCFCs can operate at high temperatures and electrochemically oxidize fossil fuels directly to the anode. This eliminates the intermediate step of producing hydrogen through the costly reforming process. Gaseous molecules of the hydrocarbon fuel are absorbed on the surface of the anode in the presence of water vapor, and hydrogen atoms are efficiently stripped off to be absorbed into the electrolyte, with carbon dioxide as the primary reaction product. PCFCs have a solid electrolyte, so that the membrane cannot dry out as with PEM fuel cells, and liquid cannot leak out as with PAFCs. Among the major fuel cells types, Proton Exchange Membrane Fuel Cells (PEMFC) account for nearly 60% market share. Following Proton Exchange Membrane Fuel Cells (PEMFC), both Molten

Carbonate Fuel Cells (MCFC) and Solid Oxide Fuel Cells (SOFC) account for more than 14% market share. Protonic Ceramic Fuel Cells (PCMC) are similar to SOFCs in many ways. The major difference is that hydrogen moves through the ceramic electrolyte rather than oxygen. These fuel cells are much like a hybrid between a SOFC and a PEMFC. The major benefit of PCFCs is their ability to utilize a wide variety of fuel sources. Coal, wood, hydrocarbons, and even non-fossilized organic matter can all be used as fuel. Now, Protonic Ceramic Fuel Cells (PCMC) technology are still under development as it is not mass produced. The Colorado School of Mines (Mines) and The Research Council of Norway are the main research institutes of Protonic Ceramic Fuel Cells (PCMC).

By Market Verdors:

Ballard

Toshiba

PLUG Power

FuelCell Energy

Hydrogenics

Doosan Fuel Cell

Horizon

Intelligent Energy

Hyster-Yale Group

Nedstack

Pearl Hydrogen

Sunrise Power

By Types:

PEMFC

DMFC

PAFC

SOFC

MCFC

AFC

By Applications:

Portable

Stationary

Transport

Key Indicators Analysed

Market Players & Competitor Analysis: The report covers the key players of the industry including Company Profile, Product Specifications, Production Capacity/Sales, Revenue, Price and Gross Margin 2016-2027 & Sales with a thorough analysis of the market's competitive landscape and detailed information on vendors and comprehensive details of factors that will challenge the growth of major market vendors.

Global and Regional Market Analysis: The report includes Global & Regional market status and outlook 2016-2027. Further the report provides break down details about each region & countries covered in the report. Identifying its sales, sales volume & revenue forecast. With detailed analysis by types and applications.

Market Trends: Market key trends which include Increased Competition and Continuous Innovations.

Opportunities and Drivers: Identifying the Growing Demands and New Technology

Porters Five Force Analysis: The report provides with the state of competition in industry

depending on five basic forces: threat of new entrants, bargaining power of suppliers, bargaining power of buyers, threat of substitute products or services, and existing industry rivalry.

Key Reasons to Purchase

To gain insightful analyses of the market and have comprehensive understanding of the global market and its commercial landscape.

Assess the production processes, major issues, and solutions to mitigate the development risk.

To understand the most affecting driving and restraining forces in the market and its impact in the global market.

Learn about the market strategies that are being adopted by leading respective organizations.

To understand the future outlook and prospects for the market.

Besides the standard structure reports, we also provide custom research according to specific requirements

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Key Data Information from Primary Sources

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