

2018-2023 Global Protonic Ceramic Fuel Cell (PCFC) Consumption Market Report

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Abstracts

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In this report, LP Information covers the present scenario (with the base year being 2017) and the growth prospects of global Protonic Ceramic Fuel Cell (PCFC) market for 2018-2023.

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).

Over the next five years, LPI(LP Information) projects that Protonic Ceramic Fuel Cell (PCFC) will register a xx% CAGR in terms of revenue, reach US\$ xx million by 2023, from US\$ xx million in 2017.

This report presents a comprehensive overview, market shares, and growth opportunities of Protonic Ceramic Fuel Cell (PCFC) market by product type, application, key manufacturers and key regions.

To calculate the market size, LP Information considers value and volume generated from the sales of the following segments:

Segmentation by product type:

PEMFC

DMFC

PAFC

SOFC

MCFC

AFC

Segmentation by application:

Portable

Stationary

Transport

This report also splits the market by region:

Americas

United States

Canada

Mexico

Brazil

APAC

China

Japan

Korea

Southeast Asia

India

Australia

Europe

Germany

France

UK

Italy

Russia

Spain

Middle East & Africa

Egypt

South Africa

Israel

Turkey

GCC Countries

The report also presents the market competition landscape and a corresponding detailed analysis of the major vendor/manufacturers in the market. The key manufacturers covered in this report:

Ballard

Toshiba

PLUG Power

FuelCell Energy

Hydrogenics

Doosan Fuel Cell

Horizon

Intelligent Energy

Hyster-Yale Group

Nedstack

Pearl Hydrogen

Sunrise Power

In addition, this report discusses the key drivers influencing market growth, opportunities, the challenges and the risks faced by key manufacturers and the market as a whole. It also analyzes key emerging trends and their impact on present and future development.

Research objectives

To study and analyze the global Protonic Ceramic Fuel Cell (PCFC) consumption (value & volume) by key regions/countries, product type and application, history data from 2013 to 2017, and forecast to 2023.

To understand the structure of Protonic Ceramic Fuel Cell (PCFC) market by identifying its various subsegments.

Focuses on the key global Protonic Ceramic Fuel Cell (PCFC) manufacturers, to define, describe and analyze the sales volume, value, market share, market competition landscape, SWOT analysis and development plans in next few years.

To analyze the Protonic Ceramic Fuel Cell (PCFC) with respect to individual growth trends, future prospects, and their contribution to the total market.

To share detailed information about the key factors influencing the growth of the market (growth potential, opportunities, drivers, industry-specific challenges and risks).

To project the consumption of Protonic Ceramic Fuel Cell (PCFC) submarkets, with respect to key regions (along with their respective key countries).

To analyze competitive developments such as expansions, agreements, new product launches, and acquisitions in the market.

To strategically profile the key players and comprehensively analyze their growth strategies.

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