

Materials for Proton Exchange Membranes and Membrane Electrode Assemblies for PEM Fuel Cells

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Abstracts

Report Scope

The fuel cell industry in various forms has been developing for decades. There are notable examples of fuel cell successes. The PEMFC is emerging as a winner in many of the primary categories that fuel cells can satisfy. Existing membranes and assemblies still have room for improvement. PEMFC development and commercialization is an ever-changing process. This BCC Research analysis examines the market and technology for the materials and technology of proton exchange membranes and electrode assemblies and for bipolar plates for PEMFCs, including direct methanol fuel cells (DMFCs). This includes the gas diffusion layer (GDL), the catalyst ink/electrode, the membrane itself and the bipolar plate. Ancillary stack assembly materials such as bolts, gaskets, tie-outs, and final assembly and packaging costs are excluded.

This report details the actuals for 2016 and 2017, forecasts for 2022, and compound annual growth rate (CAGR) projections for 2017 through 2022. A patent analysis and discussion for power sources and vehicle components describes where research is performed and emphasizes intellectual property issues. An extensive set of company profiles is provided.

Report Includes

58 tables

An overview of the global market for components for proton exchange membrane fuel cell (PEMFC) membrane electrode assembly (MEA)

Analyses of global market trends, with data from 2016 and 2017, and projections of compound annual growth rates (CAGRs) through 2022

Examination of bipolar plates for PEMFCs, including direct methanol fuel cells (DMFCs); this includes the gas diffusion layer (GDL), the catalyst ink/electrode, the membrane itself, and the bipolar plate

Discussion covering the history and technological advancement of these components, the companies involved in these developments, the current and projected incentives, and the projected markets for such technologies

Patent analyses as well as discussion covering power sources and vehicle components, emphasizing intellectual property issues

Profiles of major companies in the industry, including 3M, Ballard Power Systems, Hydrogenics Corp., Showa Denko K.K (SDK) and Plug Power

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ASAHI KASEI CHEMICALS CORP.
AXANE
BALLARD POWER SYSTEMS
BASF CORP.
BTR NEW ENERGY MATERIALS INC
CAMBRIDGE DISPLAY (MAXDEM INC.)
DAIS ANALYTIC CORP.
CHEMOURS

GORE FUEL CELL TECHNOLOGIES
HOKU SCIENTIFIC INC.
HYDROGENICS CORP.
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3M
ALTERGY SYSTEMS
AKZO NOBEL
ALLEGHENY TECHNOLOGIES INC
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AUTOMOTIVE FUEL CELL COOPERATION CORP.
AVCARB
BALLARD POWER SYSTEMS
CHEMOURS
DAIMLER
ELECTROCHEM INC. (FUELCELL.COM)
ENGINEERED FIBERS TECHNOLOGY LLC
ENTEGRIS INC.
FRONTIER CARBON CORP. (FCC)
FUELCELLSETC

GENERAL MOTORS, CORP.
GORE FUEL CELL TECHNOLOGIES
GRAFTECH INTERNATIONAL LTD.
HENKEL (ACHESON)
HYDROGENICS CORP.
HONDA
HORIZON FUEL CELLS
HYUNDAI MOTOR
IMERYS GRAPHITE & CARBON
INTELLIGENT ENERGY
METRO MOLD & DESIGN
JOHNSON MATTHEY FUEL CELLS RESEARCH
MATERIALS AND ELECTROCHEMICAL RESEARCH CORP.
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NEDSTACK FUEL CELL TECHNOLOGY
NIPPON CARBON CO. LTD
NISSHINBO CHEMICAL INC.
NUVERA FUEL CELLS (NACCO MATERIALS HANDLING GROUP)
OORJA PROTONICS INC.
OXAZOGEN
PACIFIC CENTURY ENTERPRISE INC.
PLASTIC OMNIUM
PLUG POWER
PORVAIR FUEL CELL TECHNOLOGY
POWERCELL SWEDEN AB (VOLVO)
PROTON POWER SYSTEMS
PROTONEX TECHNOLOGY CORP.
QINGDAO HAIDA GRAPHITE CO., LTD
QINGDAO HENSEN GRAPHITE CO., LTD
SGL GROUP – THE CARBON COMPANY
SHANSHAN TECHNOLOGY
SHOWA DENKO K.K. (SDK)
SHANGHAI SHENLI HIGH TECH CO. LTD.
SFC ENERGY
SPECTRACORP (ENGINEERED FIBERS TECHNOLOGY)
SUMITOMO METAL MINING
SUPERIOR GRAPHITE CO.
TICONA (CELANESE CORP.)
TORAY INDUSTRIES INC. (ZOLTEK MATERIALS GROUP)

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