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

Description: This report provides:

- An overview of the global market for materials for proton exchange membranes and membrane electrode assemblies for PEM fuel cells.
- 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 advancing technology of these components, the companies involved in these developments, the current and projected incentives, and the projected markets for such technologies.
- Presentations of consensus, optimistic, and pessimistic scenarios.
- Patent analysis as well as discussion covering power sources and vehicle components, emphasizing intellectual property issues.
- Comprehensive company profiles of major players in the field.

Highlights

- The global market for proton exchange membrane fuel cell (PEMFC) membrane electrode assemblies (MEA) reached $340 million and $460 million in 2010 and 2014, respectively. This market is expected to reach $534 million by 2015 and $1.9 billion by 2020, registering a compound annual growth rate (CAGR) of 29.4% from 2015 to 2020.
- Bipolar plates/collectors as a segment for this market will grow from $145 million in 2015 to $510 million in 2020 at a CAGR of 28.6% from 2015-2020.
- Membranes as a segment for this market will grow from $209 million in 2015 to $800 million in 2020 at a CAGR of 30.8% from 2015-2020.

Scope Of Report

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 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 or 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 2010 and 2014, forecasts for 2015, and compound annual growth rate (CAGR) projections for 2020. When appropriate, consensus, optimistic and pessimistic scenarios are presented. A patent analysis and discussion of power sources and vehicle components describes where research is performed and emphasizes intellectual property issues. An extensive set of company profiles is provided.

Methodology

An in-depth analysis of technical and business literature and published dissertations, a review of the history of the technologies involved, interviews with industry experts, company representatives, federal government researchers and university scientists provide an assessment of the outlook for the next generation of PEMFCs and membrane electrode assemblies. Other information sources include product literature from suppliers, scientific references, conferences and patent searches. Both primary and secondary research methodologies were used in preparing this report, which is based on interviews with commercial and government sources, literature reviews and patent examinations. Throughout the report, past market data is expressed in current U.S. dollars, and estimates and projections are in constant 2015 U.S. dollars. Most market summaries are based on a consensus scenario for wholesale (producer) prices that assumes no unanticipated technical advances and no unexpected legislation. When appropriate, pessimistic, consensus and optimistic market scenarios characterize several developmental markets. Totals are rounded to the
nearest million dollars. When appropriate, information from previously published sources is identified to allow a more detailed examination by clients.

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