

Membranes and MEAs for Dry, Hot Operating Conditions (Topic 1)

3M Company

- Funding

DOE Cost Share	Recipient Cost Share	TOTAL
\$8,931,390	\$2,519,110	\$11,450,500
78%	22%	100%

- **Project Description:** The objectives of this collaborative effort are to develop new proton exchange membranes (PEM's) for fuel cells, integrate them into membrane electrode assemblies (MEA's), and demonstrate in single cell and short stack testing that these fuel cells will be capable of providing excellent durability and performance while operating under low humidification conditions and at temperatures ranging from -20°C to 120°C. The proton conducting polymer materials to be developed will include both fluorinated and non-fluorinated ionomers with sulfonic acid groups as well as other protogenic groups. Inorganic materials will be added to the polymer to form composite membranes for the purpose of increasing proton conductivity, improving membrane mechanical properties, and increasing oxidative stability. Success on this project will result in PEM's with the performance, cost, and durability characteristics required for fuel cells to meet 2010 commercialization targets for the automotive industry and other fuel cell applications such as stationary power.
- **Timeframe:** 4 years, starting in FY07

Sub-Contractors

Institutions
Case Western Reserve University
Colorado School of Mines
University of Detroit
University of Alabama