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(54) Title: SULFONATED CONDUCTING POLYMER-GRAFTED CARBON MATERIAL FOR FUEL CELL APPLICATIONS

(57) Abstract: A composition comprising particulate carbonaceous material and a sulfonated conducting polymer containing hetero atoms. The composition can further comprise a metal. Devices comprising the composition can be constructed including supported electrocatalysts, membrane electrode assemblies, and fuel cells. A method for preparing the composition comprises oxidatively polymerizing a monomer of a conducting polymer containing hetero atoms in the presence of a carbonaceous material and sulfonating the polymer or the monomer. The method grafts the sulfonated conducting polymer to the carbonaceous material. The method can further comprise metallizing the polymer-grafted carbonaceous material.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/16320

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01B 1/00, 1/04, 1/02; H01M 8/10
 US CL : 429/33; 252/500, 503, 514

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 429/33; 252/500, 503, 514

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y,P	US 5,498,372 A (HEDGES) 12 March 1996 (12.03.1996), abstract and column 7, line 64 through column 16, line 30.	1-18, 25-30, 34-35, 37, 47 ----- 19-24, 31, 33, 41-45
Y,P	US 6,478,987 B1 (AKITA et al.) 12 November 2002 (12.11.2002), column 10, line 15 through column 13, line 4	19-24, 31-33, 41-48
X,P	column 10, line 15 through column 13, line 4.	48-56
A	Wei, X. and Epstein, A.J. Synthesis of highly sulfonated polyaniline Synthetic Metals 74 (1995), pages 123-125.	36, 38-40

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
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INTERNATIONAL SEARCH REPORT

PCT/US03/16320

Continuation of B. FIELDS SEARCHED Item 3:

East, West

search terms: grafting polymerization, sulfonation, oxidation polymerization, fuel cells, carbonaceous particles, reducing agents, conducting polymers