(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 December 2009 (17.12.2009)

PCT

(10) International Publication Number
WO 2009/152003 A3

(51) International Patent Classification:
B01J 21/06 (2006.01) *B01J 31/06* (2006.01)
B01J 35/10 (2006.01) *B01J 23/42* (2006.01)
B01J 23/20 (2006.01) *H01M 4/86* (2006.01)

(21) International Application Number:
PCT/US2009/046044

(22) International Filing Date:
3 June 2009 (03.06.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/060,511 11 June 2008 (11.06.2008) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
4 March 2010

(54) Title: MESOPOROUS ELECTRICALLY CONDUCTIVE METAL OXIDE CATALYST SUPPORTS

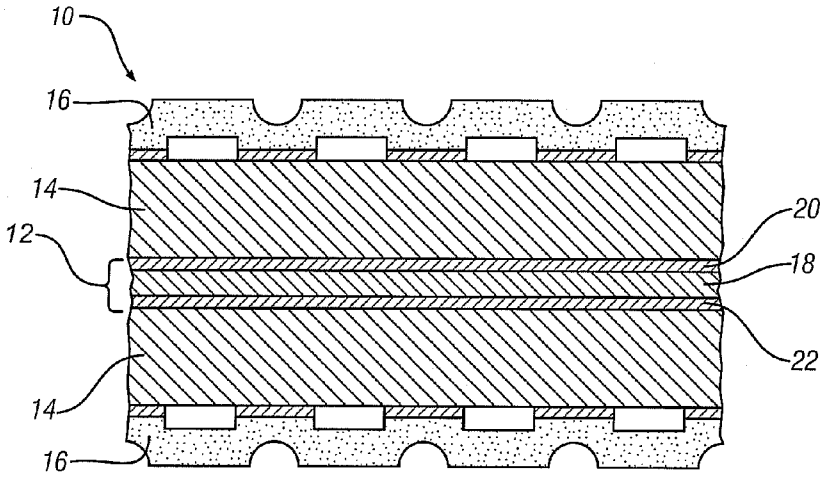


FIG. 1

(57) Abstract: A catalyst support material comprising TiO_2, and optionally being doped with a transition metal element, and a method for synthesizing the same have been developed. The catalyst support material exhibits an electrical conductivity comparable to widely-used carbon materials. This is because the TiO_2 present is primarily arranged in its rutile crystalline phase. Furthermore, a mesoporous morphology provides the catalyst support material with appropriate porosity and surface area properties such that it may be utilized as part of a fuel cell electrode (anode and/or cathode). The TiO_2-based catalyst support material may be formed using a template method in which precursor titanium and transition metal alkoxides are hydrolyzed onto the surface of a latex template, dried, and heat treated.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/046044

A. CLASSIFICATION OF SUBJECT MATTER

B01J 21/06(2006.01)i, B01J 35/10(2006.01)i, B01J 23/20(2006.01)i, B01J 31/06(2006.01)i, B01J 23/42(2006.01)i, H01M 4/86(2006.01)i

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)

IPC8 B01J, H01M

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

Korean Utility models and applications for Utility models since 1975
Japanese Utility models and applications for Utility models since 1975

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

eKOMPASS(KIPO internal) "catalyst" "rutile" "TiO2" "mesoporous titania"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006/0105141 A1 (General Electric Company) 18 May 2006 see the abstract and claims 22-25.	1 - 20
A	US 2008/0090118 A1 (Leonid Gorobinskiy et al.) 17 April 2008 see the claim 24.	1 - 20
A	US 6,506,510 B1 (UOP LLC) 14 January 2003 see the abstract.	1 - 20

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 JANUARY 2010 (18.01.2010)	**18 JANUARY 2010 (18.01.2010)**

Name and mailing address of the ISA/KR

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Facsimile No. 82-42-472-7140

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/046044

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006-0105141 A1	18.05.2006	US 2008-0011050 A1	17.01.2008
US 2008-0090118 A1	17.04.2008	KR 10-0814812 B1	19.03.2008
US 06506510 B1	14.01.2003	None	