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(71) Applicant *(for all designated States except US)*: **UNIVERSITY OF HOUSTON SYSTEM** [US/US]; 316 E. Cullen Building, Houston, Texas 77204-2015 (US).

(72) Inventors; and

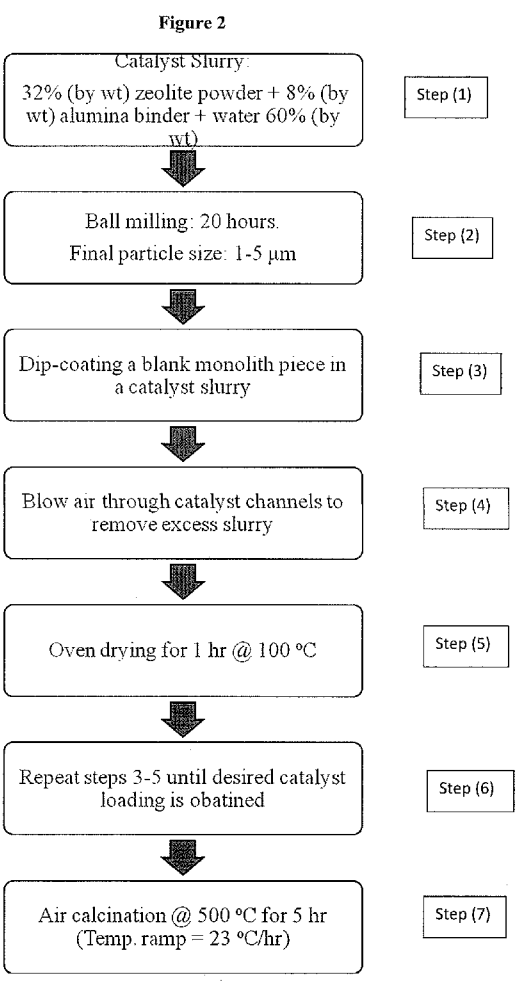
(75) Inventors/Applicants *(for US only)*: **HAROLD, Michael P.** [US/US]; 15506 Pinenut Bay Court, Houston, Texas 77059 (US). **METKAR, Pranit** [IN/US]; 2111 Holly Hall Street, Apt. 3702, Houston, Texas 77054 (US).

(74) Agent: **MAAG, Gregory L.**; Conley Rose, P.C., 1001 McKinney, Suite 1800, Houston, Texas 77002 (US).

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*[Continued on next page]*

(54) Title: MULTI-COMPONENT AND LAYERED FORMULATIONS FOR ENHANCED SELECTIVE CATALYTIC REDUCTION ACTIVITY




(57) Abstract: A method for controlling NOx emissions, in certain instances from diesel or fixed position combustion engines. More specifically a method for forming emission control catalyst structures for fuel combustion, a method of producing the catalyst, and a method of operating the catalyst to control emissions.

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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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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**A. CLASSIFICATION OF SUBJECT MATTER**

***B01J 37/02(2006.01)i, B01J 37/06(2006.01)i, B01J 6/00(2006.01)i, B01J 23/44(2006.01)i, B01J 29/06(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)

B01J 37/02; B01J 21/06; B01D 53/94; B01J 21/08; B01J 23/10

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
Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: catalyst, multi-layer, mill, slurry, washcoat, monolithic support, NOx, selective catalytic reduction

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | US 2010-0124523 A1 (CHEN SHAU-LIN F. et al.) 20 May 2010<br>See claims 1, 20 | 1-4,6-30 |
| A | US 05272125A A (WEIBLE GLEN P. et al.) 21 December 1993<br>See claim 1 | 1-4,6-30 |

☐ 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
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
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"P" document published prior to the international filing date but later than the priority date claimed
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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"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 |
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| Name and mailing address of the ISA/KR<br>Korean Intellectual Property Office<br>189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan City, 302-701, Republic of Korea<br>Facsimile No. 82-42-472-7140 | Authorized officer<br>Kim Ji Woo<br>Telephone No. 82-42-481-8704 |

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Information on patent family members

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| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| US 2010-0124523 A1 | 20.05.2010 | None | |
| US 05272125A A | 21.12.1993 | EP 0599379 A2 | 01.06.1994 |