

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 November 2006 (09.11.2006)

PCT

(10) International Publication Number
WO 2006/118700 A1

(51) International Patent Classification:

B01J 29/65 (2006.01) **B01J 29/80** (2006.01)
B01J 23/745 (2006.01) **B01J 29/072** (2006.01)
B01J 29/68 (2006.01) **C10G 11/18** (2006.01)
C10G 11/05 (2006.01) **B01J 23/06** (2006.01)

(21) International Application Number:

PCT/US2006/010968

(22) International Filing Date: 24 March 2006 (24.03.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/676,618 29 April 2005 (29.04.2005) US

(71) Applicant (for all designated States except US): **W.R. GRACE & CO.-CONN.** [US/US]; 7500 Grace Drive, Columbia, Maryland 21044 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **YALURIS, George** [US/US]; 6702 Surrey Lane, Clarksville, Maryland 21029 (US). **LUSSIER, Roger Jean** [US/US]; 17 Country Walk Dr., Manchester, New Hampshire 03109 (US). **RUDESILL, John Allen** [US/US]; 10824 Hilltop Lane, Columbia, Maryland 21044 (US). **ZIEBARTH, Michael Scott** [US/US]; 12071 Little Patuxent Parkway, Columbia, Maryland 21044 (US). **KRISHNAMOORTHY,**

Meenakshi Sundaram [IN/US]; 5020 Walking Stick Road, Ellicott City, Maryland 21043 (US).

(74) Agent: **ARTALE, Beverly J.**; W.R. Grace & Co. - Conn., 7500 Grace Drive, Columbia, Maryland 21044 (US).

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

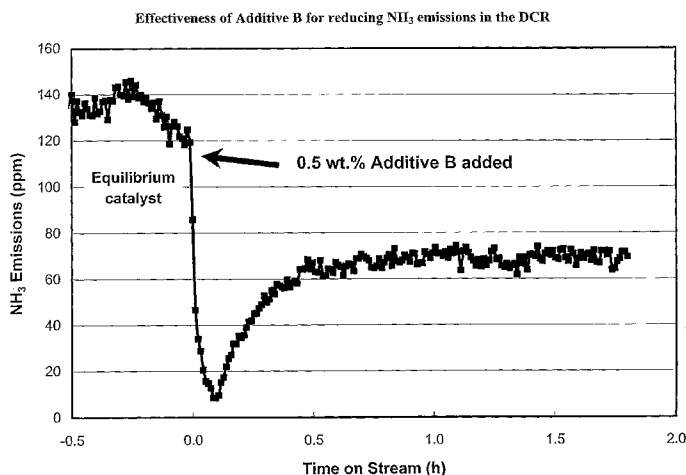
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: NO_x REDUCTION COMPOSITIONS FOR USE IN PARTIAL BURN FCC PROCESSES



(57) Abstract: A NO_x reduction composition and process of using the composition to reduce the content of NO_x emissions and gas phase reduced nitrogen species released from the regeneration zone during fluid catalytic cracking of a hydrocarbon feedstock into lower molecular weight components is disclosed. The process comprises contacting a hydrocarbon feedstock during a fluid catalytic cracking (FCC) process wherein a regeneration zone of an fluid catalytic cracking unit (FCCU) is operated in a partial or incomplete combustion mode under FCC conditions, with a circulating inventory of an FCC cracking catalyst and a particulate NO_x reduction composition. The NO_x reduction composition has a mean particle size of greater than 45 μm and comprises (1) a zeolite component having (i) a pore size of form 2-7A Angstroms and (ii) a SiO₂ to Al₂O₃ molar ratio of less than 500, and (2) at least one noble metal selected from the group consisting of platinum, palladium, rhodium, iridium, osmium, ruthenium, rhenium and mixtures thereof.

WO 2006/118700 A1



Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.