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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 October 2005 (27.10.2005)

PCT

(10) International Publication Number
WO 2005/099898 A1

(51) International Patent Classification[7]: B01J 29/80, C10G 11/18

(21) International Application Number: PCT/US2005/012982

(22) International Filing Date: 15 April 2005 (15.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

10/824,913	15 April 2004 (15.04.2004)	US
10/909,709	2 August 2004 (02.08.2004)	US

(71) Applicant *(for all designated States except US)*: **W. R. GRACE & CO.- CONN.** [US/US]; 7500 Grace Drive, Columbia, Maryland 21044-4098 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **YALURIS, George** [GR/US]; 6702 Surrey Lane, Columbia, Maryland 21029 (US). **ZIEBARTH, Michael Scott** [US/US]; 12071 Little Patuxent Parkway, Columbia, Maryland 21044 (US). **ZHAO, Xinjin** [US/US]; 1731 Cattail Meadows Drive, Woodbine, Maryland 21797 (US).

(74) Agent: **ARTALE, Beverly J.**; 7500 Grace Drive, Columbia, MD 21044 (US).

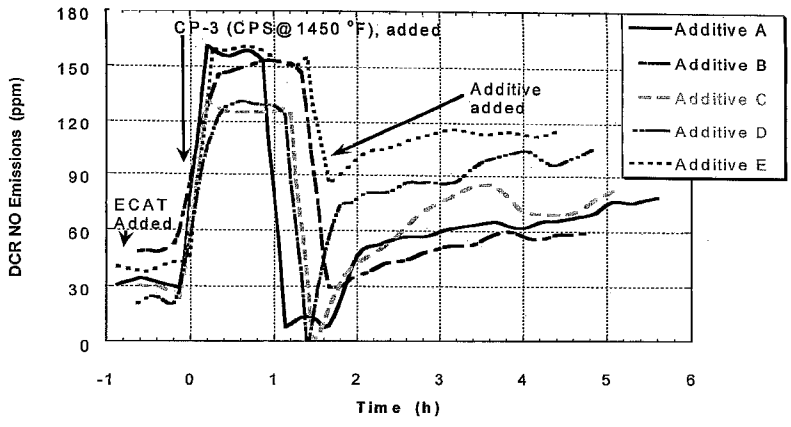
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, 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, 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).

[Continued on next page]

(54) Title: COMPOSITIONS AND PROCESSES FOR REDUCING NO_X EMISSIONS DURING FLUID CATALYTIC CRACKING

FIGURE



(57) Abstract: Compositions for reduction of NO_X generated during a catalytic cracking process, preferably, a fluid catalytic cracking process, are disclosed. The compositions comprise a fluid catalytic cracking catalyst composition; preferably containing a Y-type zeolite, and a particulate NO_X reduction composition containing particles of a zeolite having a pore size ranging from about 3 to about 7.2 Angstoms and a SiO_2 to Al_2O_3 molar ratio of less than about 500. Preferably, the NO_X reduction composition contains NO_X reduction zeolite particles bound with an inorganic binder, In the alternative, the NO_X reduction zeolite particles are incorporated into the cracking catalyst as an integral component of the catalyst. Compositions in accordance with the invention are very effective for the reduction of NO_X emissions released from the regenerator of a fluid catalytic cracking unit operating under FCC process conditions without a substantial change in conversion or yield of cracked products. Processes for the use of the compositions are also disclosed.

WO 2005/099898 A1

Declaration under Rule 4.17:

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

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.