

(43) International Publication Date
3 April 2014 (03.04.2014)(10) International Publication Number
WO 2014/051529 A3

- (51) **International Patent Classification:**
B01J 23/00 (2006.01) *B01J 31/00* (2006.01)
- (21) **International Application Number:**
PCT/TH2013/000051
- (22) **International Filing Date:**
27 September 2013 (27.09.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
GB1217351.4 28 September 2012 (28.09.2012) GB
- (71) **Applicant:** SCG CHEMICALS CO., LTD. [TH/TH];
No.1 Siam Cement Road, Bangsue Sub-district, Bangsue
District, Bangkok Metropolis 10800 (TH).
- (72) **Inventor:** O'HARE, Dermot; UNIVERSITY OF OX-
FORD, Chemistry Research Laboratory, Department of
Chemistry, Mansfield Road, Oxford OX1 3TA (GB).
- (74) **Agent:** DUANGMANEE, Vikran; SCG CHEMICALS
CO., LTD., No.1 Siam Cement Road, Bangsue Sub-dis-
trict, Bangsue District, Bangkok Metropolis 10800 (TH).
- (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, BN, 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, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
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.

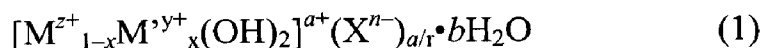
- (84) **Designated States** (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, 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,
KM, 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:**
22 May 2014

(54) Title: CATALYST SYSTEMS



(57) **Abstract:** The present invention relates to a process for preparing a catalyst support comprising a layered double hydroxide (LDH), the process comprising, a) providing a water-wet layered double hydroxide of formula: [Formula should be inserted here] wherein M and M' are metal cations, z = 1 or 2; y = 3 or 4, x is 0.1 to 1, preferably x < 1, more preferably x = 0.1 - 0.9, b is 0 to 10, X is an anion, r is 1 to 3, n is the charge on the anion and a is determined by x, y and z, preferably a = z(1-x)+xy-2 b) maintaining the layered double hydroxide water-wet, c) contacting the water-wet layered double hydroxide with at least one solvent, the solvent being miscible with water and preferably having a solvent polarity (P') in the range 3.8 to 9, and d) thermally treating the material to produce a catalyst support, a process for producing a solid catalyst, a polymerization catalyst as well as the use of an olefin polymerization catalyst in a polymerization process.



WO 2014/051529 A3