



(51) International Patent Classification:

B01J 21/02 (2006.01) *B01J 31/16* (2006.01)
B01J 21/08 (2006.01) *C07D 317/36* (2006.01)
B01J 31/02 (2006.01) *C07F 5/06* (2006.01)

straat 16, 2807 HS Gouda (NL). **REEK, Joost Nicolaas Hendrik**; Verdijkstraat 16, 2807 HS Gouda (NL).

(74) Agent: **CRAMWINCKEL, Michiel**; Postbus 169, 8330 AD Steenwijk (NL).

(21) International Application Number:

PCT/EP2024/063744

(22) International Filing Date:

17 May 2024 (17.05.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2034862 19 May 2023 (19.05.2023) NL

(71) Applicant: **NEW GREEN WORLD B.V.** [NL/NL];
 Verdijkstraat 16, 2807 HS Gouda (NL).

(72) Inventors: **VERGUNST, Frank**; Verdijkstraat 16, 2807 HS Gouda (NL). **KWAKKENBOS, Bob**; Verdijkstraat 16, 2807 HS Gouda (NL). **KLUWER, Alexander Marco**; Verdijkstraat 16, 2807 HS Gouda (NL). **CAUMES, Xavier**; Verdis-

(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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, 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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ,

(54) Title: A HETEROGENEOUS CATALYST

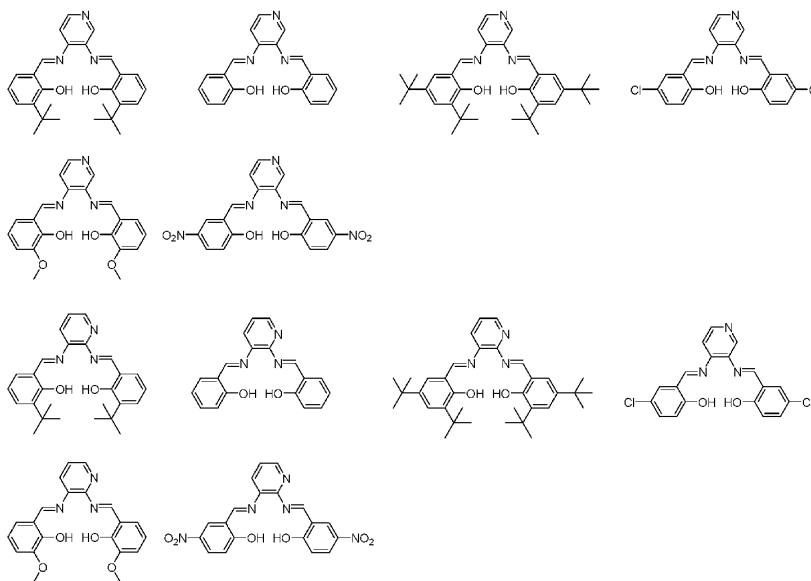


Fig. 1

(57) Abstract: The invention is directed to a heterogeneous catalyst comprising carrier particles having a carrier surface, to which carrier surface a metal-complex, such as a salen aluminium complex and a halogen salt are individually immobilized and wherein to which carrier surface an amine may also be immobilized. The invention is also directed to a process to prepare a cyclic carbonate by reacting an epoxide compound and carbon dioxide in the presence of the heterogeneous catalyst and a halogen compound.

[Continued on next page]

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, ME, 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))