



(51) International Patent Classification:

C07C 1/20 (2006.01) C07C 11/06 (2006.01)
C07C 4/06 (2006.01) C07C 41/06 (2006.01)
C07C 11/04 (2006.01)

(21) International Application Number:

PCT/EP2012/067501

(22) International Filing Date:

7 September 2012 (07.09.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11180317.7 7 September 2011 (07.09.2011) EP

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(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, 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, PA, 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).

Declarations under Rule 4.17:

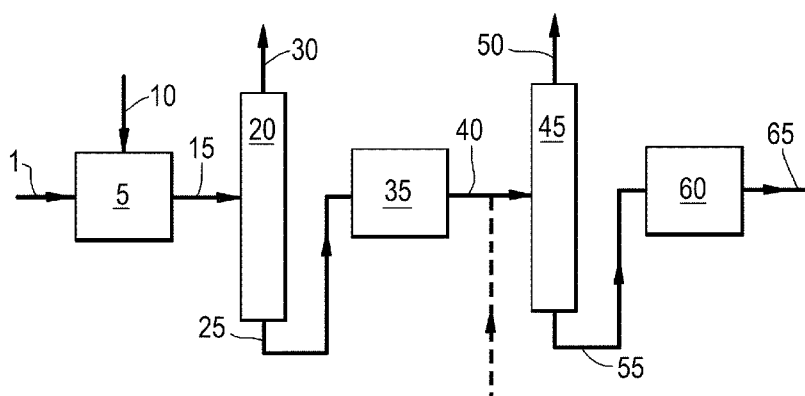
— as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))

Published:

— with international search report (Art. 21(3))

(54) Title: PROCESS FOR PREPARING ETHYLENE AND/OR PROPYLENE AND AN ISO-OLEFIN-DEPLETED C4 OLEFIN-
IC PRODUCT

Fig.1



(57) Abstract: The present invention provides a process for preparing ethylene and/or propylene and an iso-olefin-depleted C4 olefinic product, comprising the steps of: a) providing a C4 hydrocarbon stream, comprising normal olefins and iso-olefins; b) subjecting the C4 hydrocarbon stream to an etherification process with methanol and/or ethanol wherein at least part of the iso-olefins are converted with methanol and/or ethanol to a tert-alkyl ether, and retrieving an etherification product stream; c) separating at least part of the etherification product stream into at least an ether-enriched stream and a first iso-olefin-depleted C4 olefinic product; d) converting at least part of the tert-alkyl ether in the ether-enriched stream to ethylene and/or propylene by contacting least part of the ether-enriched stream with a molecular sieve-comprising catalyst at a temperature in the range of from 350 to 1000 °C and retrieving a second olefinic product comprising ethylene and/or propylene.