

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 December 2007 (21.12.2007)

PCT

(10) International Publication Number
WO 2007/144360 A3

- (51) **International Patent Classification:**
C07C 29/80 (2006.01) **C07C 31/20** (2006.01)
- (21) **International Application Number:**
PCT/EP2007/055785
- (22) **International Filing Date:** 12 June 2007 (12.06.2007)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
06253031.6 13 June 2006 (13.06.2006) EP
- (71) **Applicant (for all designated States except US):** **SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.** [NL/NL]; Carel van Bylandtlaan 30, NL-2596 HR The Hague (NL).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **BASTINGS, Roel Guillaume Hubertus Leonardus** [NL/NL]; Badhuisweg 3, NL-1031 CM Amsterdam (NL). **WESTERINK, Anton Pieter** [NL/NL]; Badhuisweg 3, NL-1031 CM Amsterdam (NL).
- (74) **Agent:** **SHELL INTERNATIONAL B.V.**; Intellectual Property Services, PO Box 384, NL-2501 CJ The Hague (NL).

- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, 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, MT, 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:

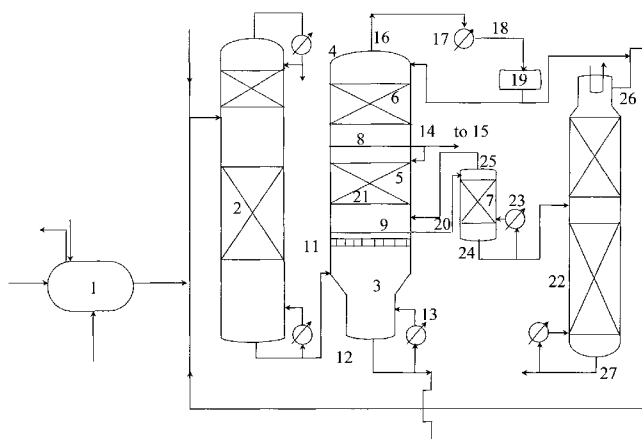
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

- with international search report

[Continued on next page]

(54) **Title:** GLYCOL SEPARATION AND PURIFICATION



(57) **Abstract:** A process and an apparatus for the separation of a homogeneous catalyst solution from crude monoethylene glycol (MEG) and for purifying MEG is disclosed. The process comprises separating catalyst solution by evaporating crude MEG and feeding crude MEG to a rectification section, a stripping section, and thence to a pasteurisation section, each section operated at subatmospheric pressure of $0.5 \times 10^5 \text{ Nm}^{-2}$ or less, the rectification and pasteurisation sections being at pressure less than that of the catalyst separation section, wherein the process provides a pressure differential across the catalyst separation and rectification sections and wherein vapour phase crude MEG from the catalyst separation section is fed as substantially vapour phase feed to the rectification section. The apparatus comprises a catalyst separation section, an MEG rectification section, a stripping section and a pasteurisation section, wherein the MEG rectification and pasteurisation sections are located within a MEG purification column, and the catalyst separation section is either located in the MEG purification column or in a separate upstream vessel, and wherein the separation section provides a crude MEG feed inlet to the MEG rectification section and an outlet for separated catalyst, wherein the crude MEG feed inlet to the MEG rectification section is a vapour feed inlet.

WO 2007/144360 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) **Date of publication of the international search report:**

7 February 2008