



(51) International Patent Classification:

C07C 37/08 (2006.01) C07C 39/04 (2006.01)
C07C 2/74 (2006.01) C07C 13/28 (2006.01)
C07C 45/53 (2006.01) C07C 49/403 (2006.01)
C07C 409/14 (2006.01)

(21) International Application Number:

PCT/US2011/047848

(22) International Filing Date:

16 August 2011 (16.08.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/382,749 14 September 2010 (14.09.2010) US

(71) Applicant (for all designated States except US):

EXXONMOBIL CHEMICAL PATENTS INC.
[US/US]; A Corporation of the State of Delaware, 5200
Bayway Drive, Baytown, TX 77520-2101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KUECHLER, Keith, H.** [US/US]; 912 Applewood Drive, Friendswood, TX 77546 (US). **BENITEZ, Francisco, M.** [US/US]; 1618 Stone Meadows Lane, Houston, TX 77094 (US). **WANG, Kun** [US/US]; 5 Burr Street, Bridgewater, NJ 08807 (US). **LATTNER, James, R.** [US/US]; 10 Bay Oaks, LaPorte, TX 77571 (US). **BECKER, Christopher, L.** [US/US]; 3109 Driftwood Dr., Manhattan, KS 66503 (US).

(74) Agents: **SULLIVAN, Jamie, L.** et al.; ExxonMobil Chemical Company, Law Technology, P.O. Box 2149, Baytown, TX 77522-2149 (US).

(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, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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:

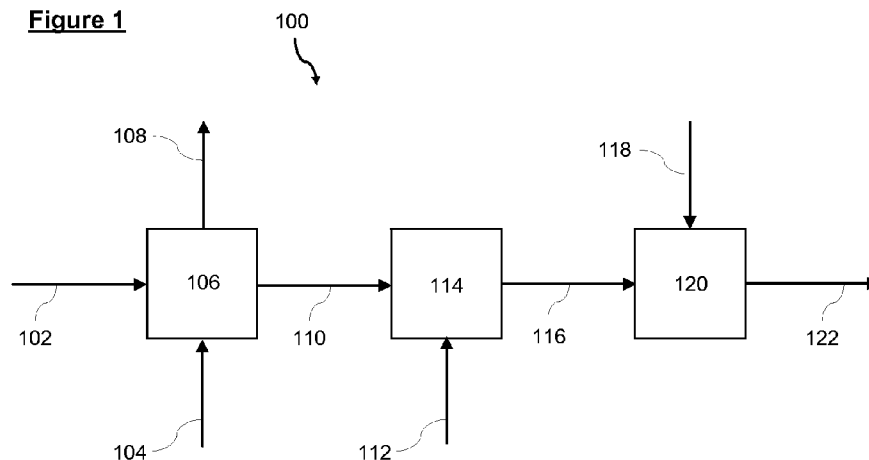
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

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

(54) Title: PROCESSES FOR PRODUCING PHENOL

Figure 1



(57) Abstract: Disclosed herein is a process for producing phenol. The process includes oxidizing at least a portion of a feed comprising cyclohexylbenzene to produce an oxidation composition comprising cyclohexyl-1-phenyl-1-hydroperoxide. The oxidation composition may then be cleaved in the presence of an acid catalyst to produce a cleavage reaction mixture comprising the acid catalyst, phenol and cyclohexanone. At least a portion of the cleavage reaction mixture may be neutralized with a basic material to form a treated cleavage reaction mixture. In various embodiments, the treated cleavage reaction mixture contains no greater than 50 wppm of the acid catalyst or no greater than 50 wppm of the basic material.