

(43) International Publication Date
21 July 2011 (21.07.2011)

PCT

(10) International Publication Number
WO 2011/087728 A2(51) International Patent Classification:
C08F 10/00 (2006.01) **C08F 2/01** (2006.01)(21) International Application Number:
PCT/US2010/061099(22) International Filing Date:
17 December 2010 (17.12.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/294,871 14 January 2010 (14.01.2010) 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 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **YEH, Richard, C.**
[US/US]; 4910 Braeburn Drive, Bellaire, TX 77401 (US).
DEVOY, Bruce, C. [US/US]; 107 Rainbow Drive #704,
Livingston, TX 77399 (US). **ESWARAN, Vetkav, R.**
[US/SG]; 16315 Heather Bend Court, Houston, TX
77059 (US). **ZHAO, Rui** [US/US]; P.O. Box 4490,
Houston, TX 77210 (US).(74) Agents: **FAULKNER, Kevin M.** et al.; ExxonMobil
Chemical Company, 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, 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:

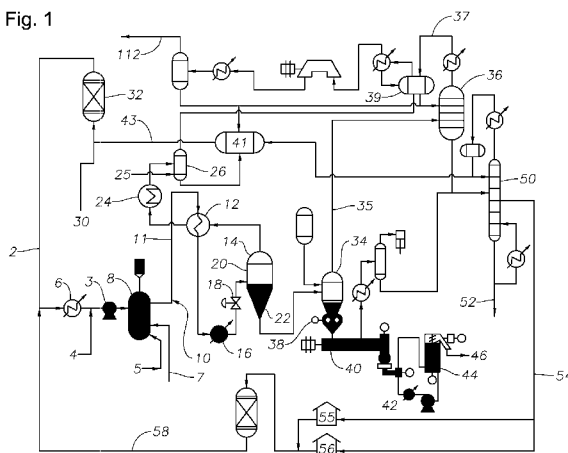
- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii))

Published:

- without international search report and to be republished
upon receipt of that report (Rule 48.2(g))

(54) Title: PROCESSES AND APPARATUS FOR CONTINUOUS SOLUTION POLYMERIZATION

Fig. 1



(57) Abstract: The invention provides a plant for the continuous solution polymerization of one or more monomers in a solvent, e.g., a hydrocarbon solvent. In one aspect, the plant comprises a high pressure pump and at least one heat exchanger downstream of the pump. In another aspect a feed is cooled by three heat exchangers which are refrigerated by means of a common three stage compressor. In another aspect, the plant comprises a primary reactor and a secondary reactor arranged to operate in parallel, in which the ratio of volume of the primary reactor to the secondary reactor is in the range of 60:40 to 95:5. In another aspect, a method of defouling a heat exchanger is provided in which the level of liquid refrigerant in the heat exchanger is temporarily lowered.