

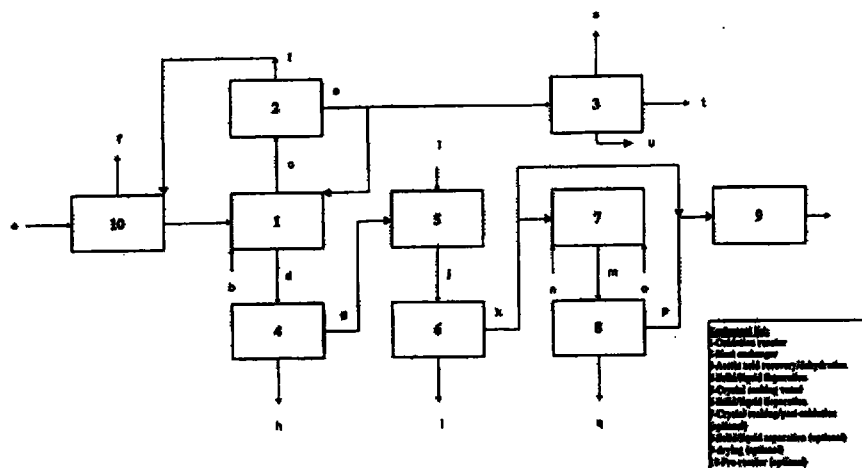


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(21) International Application Number: PCT/EP98/08134 (22) International Filing Date: 14 December 1998 (14.12.98) (30) Priority Data: 60/069,441 15 December 1997 (15.12.97) US (71) Applicant: SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V. [NL/NL]; Carel van Bylandtlaan 30, NL-2596 HR The Hague (NL). (72) Inventors: EDWARDS, Charles, Lee; 12526 Piping Rock, Houston, TX 77077 (US). JUNE, Raymond, Lawrence; 13026 Pebblebrook, Houston, TX 77079 (US). POTTER, Michael, Wayne; 305 Muirwood Lane, Sugar Land, TX 77478 (US). SIMPSON, Edward, James; 501 West 10th Street, Houston, TX 77008 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i>

(54) Title: METHOD TO PRODUCE AROMATIC CARBOXYLIC ACIDS

Process flow diagram

**(57) Abstract**

A process to produce for example terephthalic acid is provided, the process including the steps of: providing a feed stream comprising a dialkyl substituted aromatic and an organic acid solvent; contacting the feed stream with a vapour stream, the vapour stream containing at least 50 % by volume oxygen and at an oxygen partial pressure of at least 1 psi, at a temperature between about 80 °C and about 130 °C, in the presence of a catalyst system comprising zirconium and cobalt, wherein the contacting is done in a stirred tank reactor; removing from the stirred tank reactor a vapour stream comprising the organic acid and water; condensing at least a portion of the organic acid and water from the vapour stream; separating at least a portion of the water from the organic acid separated from the vapour stream; returning at least a portion of the condensed organic acid back to the stirred tank reactor; continuously recovering from the stirred tank reactor a reactor product comprising a diacid substituted aromatic; isolating solid crystals of diacid substituted aromatic from the reactor product; and recovering from the solid crystals of diacid substituted aromatic a diacid substituted aromatic having a purity of at least 97 % by weight.