

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 February 2001 (01.02.2001)

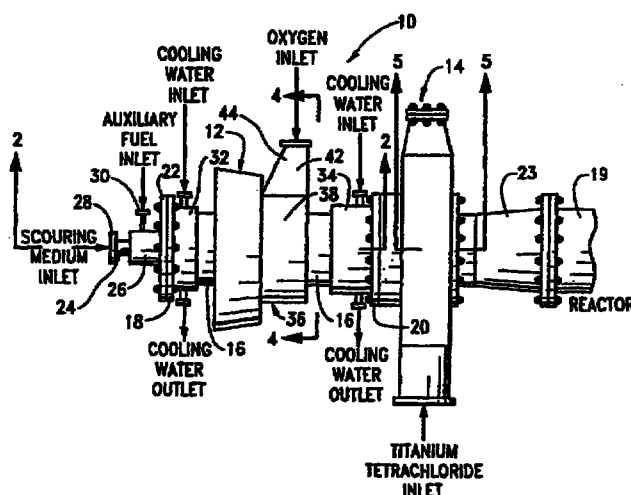
PCT

(10) International Publication Number
WO 01/07366 A1

- (51) International Patent Classification⁷: C01G 23/047, C04B 35/46, 35/48, 35/49, B01J 23/00
- (21) International Application Number: PCT/US00/20305
- (22) International Filing Date: 26 July 2000 (26.07.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/361,003 27 July 1999 (27.07.1999) US
- (71) Applicant: KERR-MCGEE CHEMICAL LLC
[US/US]; 123 Robert S. Kerr, Oklahoma City, OK 73102 (US).
- (72) Inventors: YUILL, William, A.; 7021 N.W. 222nd Street, Edmond, OK 73034 (US). NATALIE, Chuck, A.; 2309 Heatherstone Road, Edmond, OK 73034 (US).
- (74) Agents: LABRIE, Michael, J. et al.; McAfee & Taft A Professional Corporation, Tenth Floor, Two Leadership Square, 211 North Robinson, Oklahoma City, OK 73102 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, 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:
— With international search report.

[Continued on next page]

(54) Title: PROCESSES AND APPARATUS FOR REACTING GASEOUS REACTANTS CONTAINING SOLID PARTICLES



(57) Abstract: The present invention provides improved processes and apparatus (12, 14) for reacting high flow rates of one or more gaseous reactants in tubular reactors (19). The improved processes and apparatus (12, 14) allow such reactions to be carried out with a low pressure drop across reactor (19) without excessive erosion due to solid particles carried with or picked up by the gaseous reactants. A process of this invention is basically comprised of the steps of swirling a gaseous reactant which may contain or pick up solid particles in a first annular plenum chamber (36) followed by a second larger diameter annular plenum chamber (46) and then introducing the gaseous reactant and solid particles into a reactor (19) by way of two or more radial slots (59) whereby said gaseous reactant and solid particles are caused to flow into said reactor (19) and are uniformly distributed therein.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.