

(19) World Intellectual Property Organization
International Bureau



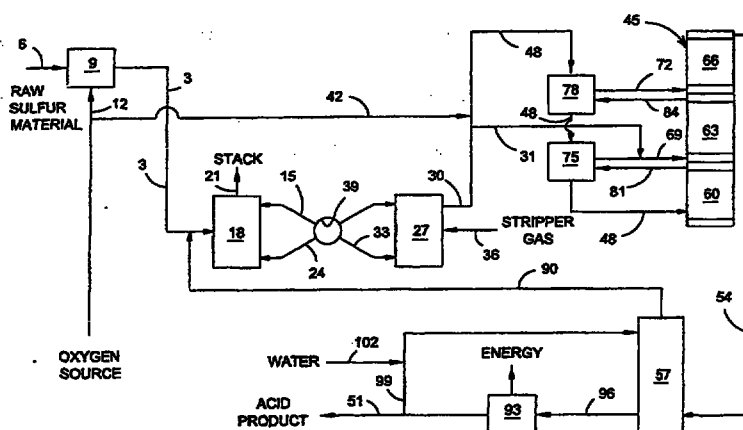
(43) International Publication Date
25 May 2001 (25.05.2001)

PCT

(10) International Publication Number
WO 01/36324 A1

- (51) International Patent Classification⁷: C01B 17/765 (74) Agents: KEIL, Vincent, M. et al.; Senniger, Powers, Leavitt & Roedel, 16th floor, One Metropolitan Square, St. Louis, MO 63102 (US).
- (21) International Application Number: PCT/US00/30095
- (22) International Filing Date:
1 November 2000 (01.11.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/163,061 1 November 1999 (01.11.1999) US
- (71) Applicant (for all designated States except US): MON-SANTO COMPANY [US/US]; 800 North Lindbergh Boulevard, St. Louis, MO 63167 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): MENON, Adam, V. [US/US]; 422 Emmanuel Drive, Valley Park, MO 63088 (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, IL, 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, US, 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, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:
— With international search report.
- 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.

(54) Title: METHOD FOR MAKING SULFUR TRIOXIDE, SULFURIC ACID, AND OLEUM FROM SULFUR DIOXIDE



(57) Abstract: A converted feed gas comprising a first portion of the SO₂-enriched stripper gas is formed. A conversion gas comprising SO₃ and residual SO₂ is formed by passing the converted feed gas through a plurality of catalyst beds in series, the plurality comprising at least 2 and no greater than 4 catalyst beds. A second portion of the SO₂-enriched gas is introduced into at least one catalyst bed which is downstream of the most upstream catalyst bed in the plurality to fortify the SO₂ concentration in the gas fed to the downstream bed. The present invention is also directed to a process for making sulfuric acid and/or oleum from a source gas comprising SO₂. A conversion gas comprising SO₃ and residual SO₂ is formed by passing the SO₂-enriched stripper gas through a plurality of catalyst beds in series. The conversion gas is combined with water vapor to form an acid product gas comprising: (a) sulfuric acid formed by a gas phase reaction between SO₃ from the conversion gas and water vapor, thereby generating the heat of formation of sulfuric acid in the gas phase; (b) SO₃; and (c) SO₂. Heat energy from the gas phase heat of formation of sulfuric acid is recovered by transfer of heat from the acid product gas to steam or feed water in an indirect heat exchanger. The cooled acid product gas is then contacted with liquid sulfuric acid in an SO₃ absorption zone to form additional sulfuric acid and/or oleum and an SO₃-depleted gas comprising SO₂.

WO 01/36324 A1