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(21) International Application Number: PCT/US99/16500 (22) International Filing Date: 21 July 1999 (21.07.99) (30) Priority Data: 60/093,598 21 July 1998 (21.07.98) US (63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application US 60/093,598 (CIP) Filed on 21 July 1998 (21.07.98) (71) Applicant (for all designated States except US): RADIAN INTERNATIONAL [US/US]; 8501 N. Mopac Boulevard, P.O. Box 201088, Austin, TX 78720-1088 (US). (72) Inventor; and (75) Inventor/Applicant (for US only): DEBERRY, David, W. [US/US]; 4001 Knollwood Drive, Austin, TX 78731 (US). (74) Agent: KLAUBER, Stefan, J.; Klauber & Jackson, 411 Hackensack Avenue, Hackensack, NJ 07601 (US).		(81) Designated States: AE, 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, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, 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>

(54) Title: IMPROVED REGENERATION METHOD FOR PROCESS WHICH REMOVES HYDROGEN SULFIDE FROM GAS STREAMS

(57) Abstract

A process is provided for the removal of hydrogen sulfide out of a gaseous stream (22), such as a natural gas or fuel gas, by contacting the hydrogen sulfide containing gas with a sorbing liquid (26) containing a tertiary amine so that the hydrogen sulfide is sorbed into the liquid in absorber (11) and transferring the sorbing liquid/hydrogen sulfide mixture to a reactor (15) where the tertiary amine promotes the conversion of the hydrogen sulfide into polysulfide via reaction with sulfur; transferring the polysulfide solution from the reactor (15) to a regenerator (10) where polysulfide is converted into elemental sulfur via reaction with air (9); transferring at least a portion of the solution

(25) containing elemental sulfur, as well as sulfate and thiosulfate species, into a mixer (36) where it is contacted with gaseous ammonia which reacts with the sulfate and thiosulfate species to produce ammonium sulfate and ammonium thiosulfate which are removed from the solution while the remaining portion of solution (25) is transferred to a sulfur recovery unit (14). That portion of the solution which has been subjected to ammonium sulfate and ammonium thiosulfate removal is rejoined with that portion of the solution (25) being forwarded to sulfur recovery unit (14). The solution from the sulfur recovery unit (14) is recycled back to the absorber (11).

