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LINDE AG

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Synthesis gas prodn. - with by-production of fuel gas and Claus unit feed gas

C88-143326 R(DE FR GB IT NL SE)

E(31-A1) H(9-D) J(1-E3B)

Prodn. of synthesis gas is effected by:

- (a) gasifying coal;
- (b) subjecting the raw gas to shift conversion;
- (c) cooling the gas;
- (d) scrubbing the gas with a solvent in a 2 part scrubber, where CO<sub>2</sub> is removed with lean solvent in the upper part and H<sub>2</sub>S and COS are removed with the CO<sub>2</sub>-enriched solvent in the lower part;
- (e) recovering part of the scrubbed synthesis gas as prod and using the rest to strip CO<sub>2</sub> from the CO<sub>2</sub>-loaded solvent from the upper part of the scrubber;
- (f) using the CO<sub>2</sub>-loaded synthesis gas as a fuel to generate electricity by means of a gas turbine;
- (g) using the stripped solvent to concentrate S cpds. in an H<sub>2</sub>S enrichment column; and
- (h) using the coned. S cpds. to produce elemental S in a

Claus unit.

ADVANTAGE

Prior art processes do to concentrate the S cpds. sufficiently for use in a Claus unit (cf. DE3427633).

PREFERRED MATERIALS

The solvent is MeOH, EtOH, acetone, N-methylpyrrolidone DMF, propylene carbonate or a polyethylene glycol dialkyl ether.

EMBODIMENT

The synthesis gas is mixed with a small amt. of MeOH, cooled in a heat exchanger (1), passed through an MeOH/H<sub>2</sub>O separator (2) and fed into the lower part of the scrubber (3), the upper part being supplied with recycled MeOH (19).

CO<sub>2</sub>-rich MeOH from the bottom of the upper part of the scrubber is passed (7) to a stripper (6), where it is stripped with part (5) of the synthesis gas to produce a fuel gas (8). The CO<sub>2</sub>-depleted MeOH from the stripper is passed (9) to the top of the H<sub>2</sub>S enrichment column (10), where it absorbs H<sub>2</sub>S and COS stripped from the scrubber bottoms stream (11) with N<sub>2</sub> (14). The resulting H<sub>2</sub>S/COS-

EP-290913-A\*

enriched MeOH is passed to a thermal regeneration unit (16) to obtain an  $H_2S/COS$ -rich gas feed for the Claus unit (18). The regenerated MeOH is recycled (19) to the scrubber. (7pp367CG DwgNo1/1).

(G) ISR: No Search Report.

