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(54) Title: AMMONIA PROCESS-BASED DESULFURIZATION AND DECARBURIZATION INTEGRATED APPARATUS AND METHOD

(54) 发明名称: 一种氨法脱硫脱碳一体化装置及方法

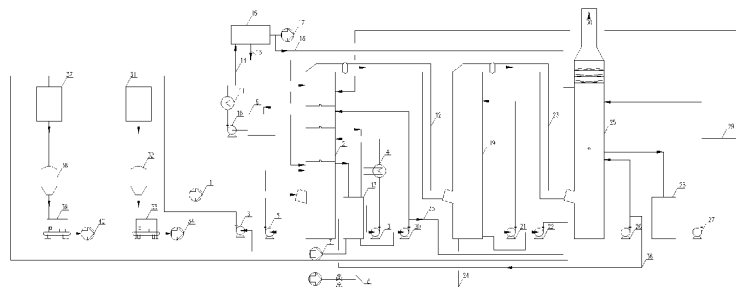


图 2

(57) Abstract: The present invention relates to the field of environmental protection, and is applied to desulfurization and decarburization of process gases containing sulfur oxides and CO₂. Ammonia is used as a desulfurization and decarburization agent; a gas first enters a desulfurization device for desulfurization, and then an ammonium sulfate chemical fertilizer is generated; the desulfurized gas enters a decarburization device, carbon dioxide in the gas is removed, and then an ammonium bicarbonate chemical fertilizer is generated; free ammonia is contained in the decarburized gas; a desulfurization circulating solution is used for washing, and then washing is carried out using water; the washing solutions return to a desulfurization tower to be used as a desulfurization absorber. According to the technique, decarburization and desulfurization technologies are organically integrated together; by using an acid desulfurization circulating solution for ammonia washing, the ammonia washing efficiency is high, the problem of ammonia escape in a decarburization process is successfully solved, the process is simple, the investment and operation costs are low, byproducts are ammonium sulfate and ammonium

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根据细则4.17的声明:

- 关于申请人有权要求在先申请的优先权 (细则4.17(iii))

本国际公布:

- 包括国际检索报告 (条约第21条(3))。

bicarbonate chemical fertilizers, it is not necessary to reinject all CO₂ into the underground for storage, part of CO₂ can be used to produce downstream products such as urea and soda ash, the product structure is flexibly adjusted, the byproduct ammonia water can be used, and "treatment of wastes with processes of wastes against one another" and a circular economy are truly realized.

(57) 摘要: 本发明应用于含硫氧化物、CO₂工艺气体的脱硫及脱碳, 属于环保领域, 以氨为脱硫和脱碳剂, 气体首先进入脱硫装置进行脱硫, 生成硫酸铵化肥, 脱硫后的气体进入脱碳装置中, 脱除气体中的二氧化碳, 生成碳酸氢铵化肥, 脱碳后的气体中含有游离氨, 采用脱硫循环液进行洗涤, 再用水洗涤, 洗涤液返回脱硫塔用于脱硫的吸收剂。该技术将脱碳和脱硫技术有机集成在一起, 采用酸性脱硫循环液洗氨, 洗氨效率高, 成功解决脱碳过程中氨逃逸问题, 流程更简单, 投资和运行成本低, 副产硫酸铵和碳酸氢铵化肥, 不需将全部CO₂回注到地下封存, 可使用部分CO₂生产尿素、纯碱等下游产品, 灵活调节产品结构, 可使用副产氨水, 真正实现了以废治废、循环经济。