

ABSTRACT

METHOD AND DEVICE FOR PRODUCING AMMONIUM BICARBONATE IN AMMONIA-BASED DECARBONIZATION SYSTEM

Apparatus and method for producing ammonium bicarbonate in an ammonia-based decarbonization system are provided. The apparatus comprises a cooling function zone operable to cool a process gas; an ammonium bicarbonate generation zone operable to generate ammonium bicarbonate; a carbon dioxide absorption zone operable to absorb, via multi-stage absorption, carbon dioxide from the process gas; and an ammonia removal function zone operable to remove ammonia from a decarbonized process gas, wherein absorbent ammonia for carbon dioxide removal is mainly added into the carbon dioxide absorption zone. Through zone control of ammonium bicarbonate generation, CO₂ absorption and ammonia removal, the efficiency of decarbonization absorption may be improved, and ammonia escape may be reduced. Meanwhile, carbon dioxide in flue gas can be utilized for producing ammonium bicarbonate as a nitrogen fertilizer.

[Figure 1]