## ABSTRACT

### METHOD AND SYSTEM FOR CAPTURING AND PURIFYING CARBON DIOXIDE

A method for capturing and purifying carbon dioxide includes: performing a process of a carbon dioxide capture on a target component by using an alkaline solution to obtain an aqueous solution containing carbonate; mixing at least a part of the aqueous solution containing carbonate with crude oxygen containing carbon dioxide generated during a step of a carbon dioxide separation to obtain oxygen and an aqueous solution containing bicarbonate; performing an electrolysis on the aqueous solution containing bicarbonate to obtain anode gas, hydrogen and a regenerated alkaline solution; and performing the step of the carbon dioxide separation on the anode gas to obtain liquid carbon dioxide and crude oxygen containing carbon dioxide. In the above method, energy consumption of an electrolysis can be effectively reduced, and a purity of liquid carbon dioxide can be improved.


**Figure 1**