

ABSTRACT

The present disclosure discloses a full recovery process for carbon dioxide discharged from a catalytic cracking regeneration device. A system required by the process includes a catalytic cracking regeneration device, a flue gas recovery device, a high-temperature flue gas fan, an oxygen production device, and a carbon-based gas mixer. According to the present disclosure, flue gas of the catalytic cracking regeneration device is circulated and a concentration of the carbon dioxide is increased, making the carbon dioxide to be easier to capture, creating favorable conditions for low-cost carbon capture, utilization, and storage (CCUS), reducing carbon dioxide emissions, and reducing the greenhouse effect. In addition, carbon-based gas is prepared by mixing circulated flue gas and oxygen and used as combustion assisting gas for the catalytic cracking regeneration device, and nitrogen is replaced with the carbon dioxide, avoiding the formation of nitrogen oxides during the combustion process, reducing environmental pollution, and greatly reducing denitrification cost. After the nitrogen is replaced with the carbon dioxide, the radiation intensity in the catalytic cracking regeneration device is greatly increased, promoting the reaction of $C+CO_2\rightarrow CO$, greatly enhancing the combustion effect, making the reaction more complete, and achieving significant effects of energy conservation and consumption reduction.

[FIG. 1]