

## Studies on the CO<sub>2</sub> separation with Heat Recovery in Methanol synthesis

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Most of methanol was produced from synthesis gas prepared by the gasification of coal or bio-mass and the reforming of natural gas in fuelss industry. To achieve better fuel efficiency and satisfy the strong regulaion of environment, the heat & mass balance and the optimization of process are important. Because CO<sub>2</sub> rich gas effects to methanol synthesis reaction, the CO<sub>2</sub> gas should be removed before entering to methanol reaction process.

In this work, the separation of CO<sub>2</sub> in methanol synthesis process was investigated by the amine process and, to improve energy consumption, heat recovery system was applied to the process for the production of methanol. It was found that, by designing CO<sub>2</sub> capture system with heat recovery system based on absorption hear transfer, the CO<sub>2</sub> separation system can improve the energy consumption and the process efficiency.