

Direct Synthesis of Acetic Acid and Methanol from Greenhouse Gases

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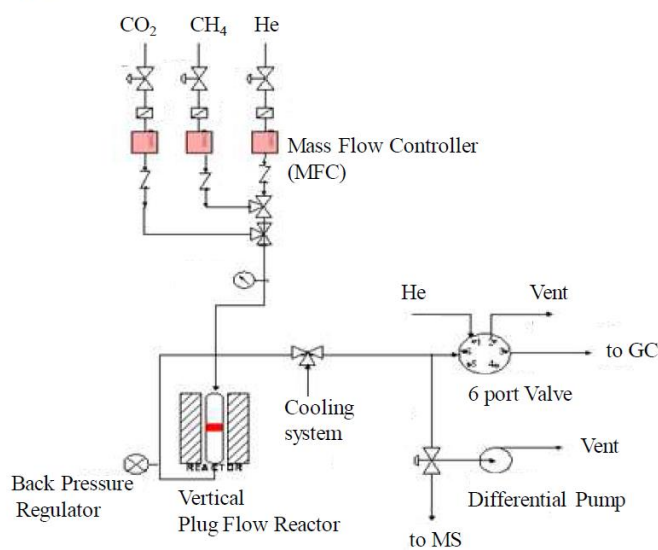
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Abstract:

Direct synthesis of valuable chemicals from greenhouse gas such as methane and carbon dioxide is an effective approach for environmental control because of its simplicity. The basic principle of direct synthesis is to look for an effective catalyst for conversion. The pathways leading to the formation of these valuable chemicals such as acetic acid, methanol and its precursor or derivatives (e.g. acetate) are examined by in situ infrared spectroscopy. A further aim of this study was to identify the effects of reaction conditions such as feed partial pressure, temperature, and other operating parameters on selectivity and yield of product. In combination with the step and pulse transient experiments, the extent of conversion of methane and carbon dioxide to acetic acid and methanol will be evaluated and discussed.

Keywords: Greenhouse gas, Acetic acid, Methanol, Infrared Spectroscopy

(a)



(b)

