Formic acid production by CO2 hydrogenation with Carbon Nitride Modification

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Carbon dioxide is main source of global warming. So, the utilization of carbon dioxide is attractive research field. Formic acid is one of the products by CO2 hydrogenation. It is a stable and safe hydrogen storage medium with a large volumetric hydrogen capacity. The main use of formic acid is antiseptics and antimicrobial agents in livestock feed. In nature, formic acid is an acidic substance in ants. In industry, methanol and CO are combined to produce methyl formate (HCO2CH3) in the presence of a strong base, and then the product is hydrolyzed to formic acid.1 For efficient hydrolysis of the methyl formate, large excess of water is required. In neutral media, it is thermodynamically unfavorable reaction due to stable carbon dioxide. But, it is eco friendly and one step reaction. For activation of carbon dioixde, carbon nitride can be good adsorbent. The properties of carbon nitride are various as synthesis method and treament.