



## **Effect of Gas Flow Rate and Time of Electrolysis on Converting Carbon Dioxide to Ethanol Using Cu-Zn as Cathode**

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**Abstract:**A research on conversion of carbon dioxide to ethanol by electrochemical synthesis method has been done. The conversion process is carried out using a NaHCO<sub>3</sub> electrolyte solution at an electrochemical reactor equipped with a cathode and anode. As the cathode is used Cu-Zn, while as anode is used carbon. The effect of CO<sub>2</sub> gas flow rate and time of electrolysis were investigated to determine the optimum conditions of process. The result was analyzed by gas chromatography to determine the content of the compounds produced qualitatively and quantitatively. The optimum conditions are gas flow rate and time of electrolysis are 0.5 L/min and 90 min with ethanol concentration yielded 1.57%.

**Keywords:** carbon dioxide, electrochemical synthesis, ethanol, Cu-Zn electrode, optimum condition.

**Septian Ramadan et al**/International Journal of ChemTech Research, 2017,10(9): 905-908.

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