CHAPTER I

INTRODUCTION

Methanol is a very important chemical with a wide range of applications. It is an outstanding solvent and very widely used for manufacturing other chemicals, such as

Formaldehyde	Commercial process is now closed because effect of the world methanol business and consumption of formalde--hyde is expected to grow at a fairy modest rate (3% annual). Other factor is the ban on urea formaldehyde home insulation in some area of the world because of possible health problems.
Dimethyl Terephthalate	Decreasing because of the gradual dis--placement of DMT with terephthalic acid as the preferred feed stock for the produc--tion production of polyester fibers.
Acetic acid	A much lower but still substantial, use for methanol is in the production of acetic acid via a carbonylation reaction. After changing the process to be carbonylation technology result in methanol require-

ments for acetic acid growing at higher rate than before.

Since most chemical markets for methanol relatively mature the largest single use for methanol is liquid fuels which induce motor fuels, motor fuels additives, and fuel for power generation.

With the world recession of the early eighties and the dramatic decrease in the world requirement for crude oil, a crude over supply has resulted in a moderation in the cost of crude. There is, however, still substantial interest in pure methanol as fuel. The used of pure methanol will require engines designed specially for its use and in addition, the use of compatible materials of construction. However, use of methanol in the manufacture of fuel additives such as methyl tertiary butyl ether (MtBE) is growing rapidly. MtBE is an effective octane-improving additive for unlead gasoline.

Methanol can be also convert to high octane gasoline by mobile's methanol to gasoline (MTG).

1.1 The Objectives of This Study

The main objectives are :

1. Find the process of methanol synthesis over copper catalyst promoted metal oxides
2. Develop the suitable / high efficiency catalyst for synthesis methanol
3. Find the optimum conditions for methanol synthesis

1.2 The Scope of This Study

The scope encompasses the following :

1. Develop the suitable catalyst by using γAl_2O_3, Cu in range of metal part by weight as follow

Cu : Ce		in range of	0.45:1-3.21:1
Cu : Zr		in range of	2:0.25-2:1.2
Cu : Sm	: Zr	in range of	2:0.25:0.25-2:0.8:1.2
Cu : Zn		in range of	2:12-5:4

2. Conditions for synthesis can be operated at temperature between 250-400°C and pressure 20 bar.

3. Using synthesis gas(feed) in ratio of 33/67 (CO/H_2)