

1- INTRODUCTION

Recently, plastics recycling has received much attention all-over the world because of serious environmental problems caused by waste plastics as well as their potential for use as resources. Landfill and incineration have not gained social acceptance as the methods for desposing of the waste, and they are becoming legally restricted because of strong pollution concerns. Plastic waste recycling can be categorized into four modes [1,2]:

- 1- Primary recycling deals with conversion into products of a nature similar to the original products.
- 2- Secondary recycling involves conversion into products of different forms for less demanding applications. Today, secondary recycling (the cheap way) is a more common practice for many plastic products by grinding, remelting and reforming them into lower-value products such as fillers and fibers. Its application is somewhat limited. In Europe, only less than 20% of plastic waste can be handled by this way [3].
- 3- Tertiary recycling convert plastic waste into basic chemicals or fuels and is unique to plastics.
- 4- Quaternary recycling methods, in which, plastic waste is burnt to generate energy; a typical example is the incineration of waste plastics for power generation.

Catalytic degradation of plastic waste [4-18] to gas and liquid products is the most promising to be developed into a commercial polymer recycling process. The products of such process could be utilized as fuels or chemicals [19,20]. By this way, waste plastics could be regarded as a cheap source of material. Thermal degradation of plastic waste [21-38]