INTRODUCTION

Chapter 1

Introduction and theoretical back ground

1- Introduction:

1.1- Basic concepts of polymer :

Polymers are compounds whose molecules are sequences of a large number of recurred identical atomic groups (units) joined through chemical bonds [1] let us consider some features of the chemical structure that determine the most impor

ant and most specific properties of polymers. Three major structural categories emerged which are illustrated schematically in fig.(1).

(i) linear polymer: a polymer in which the units in each molecule are linked together in a linear chain-like structure.

(ii) Branched polymer : a polymer composed of molecules having a branched structure: have side chain attached to their main chain.

(iii) cross-linked polymer: a polymer composed of macromolecules containing a three-dimensional space network formed by mean of chemical bonds.

According to the order in which the repeating units are arranged in the chain, polymers are classified into regular and irregular (random) structures.

Polypropylene:

polypropylene can be made in isotactic, syndiotactic, or atactic form. The crystalinity of isotactic polypropylene macks it the sole form with properties of commercial interest. Isotactic polypropylene is an essentially linear, highly crystalline polymer, with melting point of 165C.Polypropylene is the Lightest major plastic with density of 0.905 its high crystalline impart to it high,tensile strength stiffness, and hardness. The resulting high strength-to -weight ratio is an advantage to many