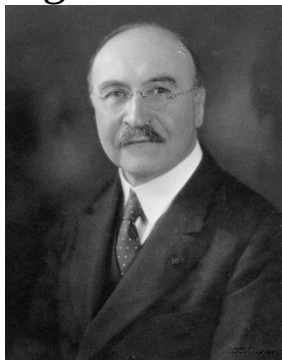


INTRODUCTION

History is shaped by the materials we develop and use. For thousands of years, humans used stone to fashion tools. Some 5,000 years ago, we learned how to make alloys of copper, and the Bronze Age began. Centuries later the Iron Age introduced iron as the material of choice. The introduction of Bakelite – the world's first synthetic plastic – in 1907 marked the introduction of the Polymer Age.

The Polymer Age is also called the Age of Plastics. "Plastic" (from the Greek "plastikos," meaning moldable) is the popular term for a variety of synthetic, or manmade, polymers. Polymers ("poly" = many) are very large molecules – veritable giants in the molecular world – comprised of smaller molecules called monomers ("mono" = one). Most polymers – but not all – consist of monomers that are similar to each other, joined together in a straight chain, like a long string of pearls.



Leo Hendrick Baekeland (1863-1944).

- **Properties:-**

- Phenol-formaldehyde resins having low degree of polymerization are soft. They possess
- excellent adhesive properties and are usually used as bonding glue for laminated wooden
- Phenol-formaldehyde resins having high degree of polymerization are hard, rigid, scratch resistant and infusible. They are resistant to high oxidizing acids and many organic solvents. They can withstand very high temperatures. They act as excellent electric insulators

- **Uses:-**

- They are used for making moulded articles such as radio and TV parts, combs, fountain pen barrels, phonograph records etc.
- They are used for making decorative laminates, wall coverings etc.
- They are used for making electrical goods such as switches, plugs etc.
- They are used for impregnating fabrics wood and paper.
- sulphonated phenol-formaldehyde resins are use as ion-exchange resins.