

## Enhancing of Paraffin Wax Properties by Adding of Low Density Polyethylene (LDPE)

**Authors :** Siham Mezher Yousif, Intisar Yahiya Mohammed, Salma Nagem Mouhy

**Abstract :** Low Density Polyethylene is a thermoplastic resin extracted from petroleum based, whereas the wax is an oily organic component that is contains of alkanes, ester, polyester, and hydroxyl ester. The purpose of this research is to find out the optimum conditions of the wax produced by inducing with LDPE. The experiments were carried out by mixing different percentages of wax and LDPE to produce different polymer/wax compositions, in which lower values of the penetration, thickness, and electrical conductivity are obtained with increasing of mixing ratio of LDPE/wax which showed results of 19 mm penetration, 692 micron thickness and 5.9 mA electrical conductivity for 90 wt % of LDPE/wax) maximum mixing ratio (. It's found that the optimum results regarding penetration, enamel thickness, and electrical conductivity "according to the enamel hardness, insulation properties, and economic aspects" are 20 mm, 276 micron, and 6.2 mA respectively.

**Keywords :** paraffin wax, low density polyethylene, blending, mixing ratio, bleaching

**Conference Title :** ICMSE 2022 : International Conference on Materials Science and Engineering

**Conference Location :** Moscow, Russia

**Conference Dates :** August 30-31, 2022