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AN IMPROVEMENT STUDY OF PHYSICAL PROPERTIES OF POLY VINYL CHLORIDE USING ZINC CHLORIDE SALT

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ABSTRACT

The operation of physical properties improvement for polyvinyl chloride PVC, using zinc chloride salt ($ZnCl_2.6H_2O$), as supporting material for the synthetic polymer, is considered the purpose of applied at this investigation, for the purpose of improving, enforcing the texture, besides increasing. It's durability and the resistance towards the external effects. the supported polymer had been studied by many ways, where firstly different weight percents of the salt has been used, which were (0.025-0.4%) many physical measurements have been taken to follow the changes over the surface of the polymer, moreover it's texture. These were via calculating the increments of hydroxyl coefficient (I_{OH}), and the carbonyl coefficient (I_{CO}), using infrared spectroscopy (I.R) and the visible ultraviolet (UV-Vis) to follow the changes at the constant of dissociation (K_d), parameter which used to illustrate the effect of salt addition, it has been found that the salt used. Led to increments at the polymer stability towards photo oxidation resulting from its exposure to environmental conditions, this had been detected due to the decreasing values of both (I_{OH}, I_{CO}) in addition to (K_d).

A continuation, the supported samples were investigated by using viscometer technique, via calculating turnover the average viscous molecular weight quantum yield, degree of fractionation and the average chain scission. The obtained results showed decrease at the average viscous molecular weight, the other variables which imply a good indicator for the increments of photo stability of the polymer. Finally the samples were followed, before and after the addition of the salt, via using the morphological technique to know the amount of energy absorbed by the samples, as well knowing the changes occurred on the surface after the irradiation

KEYWORDS: Zinc Chloride, Poly Vinyl Chloride, Improvement