

Abstract: A study on the influence of the crystal modification (α and β) of isotactic polypropylene (i-PP) films on the resulting electret properties is presented. Two commercial nucleating agents, sodium 2,2'-methylene-bis(4,6-di-tert-butylphenyl)-phosphate (NA11) and N,N'-dicyclo-hexyl-2,6-naphthalene-dicarbox-amide (NU100), were employed in this investigation. Isothermal charge decay was measured at 90 °C. In hot pressed isotropic polypropylene films, no significant differences in the charge storage properties were observed for α - and β -nucleated specimens. In addition, the article presents the influence of the nucleating agents at different concentrations on the PP-film morphology of biaxially stretched films with respect to electret features. It was possible to prepare elongated cavities with the virtually insoluble NA11 additive during stretching, even at concentrations below 0.3 wt %. These films displayed slightly improved electret properties in comparison to stretched neat PP films due to generated cavities acting as barriers for the drift of charges. Various draw ratios were also studied for i-PP films with 0.15 wt % NA11.