

Abstract: A new class of triphenylamine-based trisamide compounds has been synthesized and their structure systematically varied in order to explore its influence on the nucleation efficiency for, and on the charge-storage properties of isotactic polypropylene (i-PP). The nucleation behavior was investigated by thermal analysis, polarized light microscopy and rheology in the concentration range from 0.01 to 1 wt% of the compounds in i-PP. It was found that the nucleation efficiency decreased at increasing length of the spacer unit as consequence of increased mobility and induced disorder at the surface of the solid additive. Furthermore, we investigated the influence of the presence of nucleating agents on charge-storage properties of the polymer. The measurements were carried out on 50 μ m thick i-PP films, which were charged using with a corona setup. It was found that for this type of additives a strong correlation exists between additive concentration, nucleation efficiency and charge-storage properties.