Solution Combustion Synthesis of Cr_2O_3 Nanoparticles and Derived PVA/Cr_2O_3 Nanocomposites-Positron Annihilation Spectroscopic Study

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Abstract

Solution combustion based nanosize chromium oxide nanoparticles blended PVA/Cr_2O_3/ NaCl nanocomposite thin films of various weight percentages were synthesized using solvent cast method. The FTIR and SEM results are in confirmation with XRD results indicating the formation of nanocomposites. Positron Life time spectroscopy (PALS) are used for the microstructural characterization in the (PVA)/ Cr_2O_3 /NaCl polymer nanocomposites. The PALS results show that the free volume size and o-Ps lifetime (τ_3) increases up to 4 wt% decreases after 6 wt% The decreased o-Ps lifetime (τ_3) indicates the inhibition of o-Ps formation upon incorporation of Chromium Oxide nano particles into PVA matrix

Keywords:
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