

ABSTRACT

Lead oxide and Chromium oxide nanoparticles were synthesized by Sol-Gel method from inorganic lead and chromium salts solutions using Urea followed by calcinations. The nanoparticles obtained were spherical and of uniform particle size distribution. In the process Pb(OH)_2 and Cr(OH)_3 were obtained from various salts of lead and Chromium. The salts were then thermally decomposed to obtain the nanoparticles of PbO and Cr_2O_3 . The physical parameters of the nanoparticles were studied e.g. Solubility in different solvents and melting points. The structural and morphological properties of the prepared nanoparticles were determined by X-ray Diffraction and Scanning Electron Microscopy. XRD of PbO shows Lattice constants ($a = b = 0.32$ nm and $c = 0.52$ nm) and diffraction peaks corresponding to the planes $\langle 100 \rangle$, $\langle 002 \rangle$ and $\langle 101 \rangle$ obtained from X-ray diffraction data are consistent with the data of PbO given in the literature. The scanning electron The XRD pattern of the PbO nanoparticles synthesized by different method confirms wurtzite microscopic image of the lead oxide crystals obtained using different methods of synthesis method shows the crystal size varying from nano to micrometers. SEM of PbO nanoparticles obtained from $\text{Pb(NO}_3)_2$ indicates that they have sizes in the range of 100 nm and those obtained from $\text{Pb(CH}_3\text{COO)}_2$ are of 500 nm.