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Study of X-ray Photoelectron Spectra of Ag3d from salts and nanoparticles nanocomposites.

The X-ray photoelectron spectroscopy technique has been applied to study compounds or oxidation states of elements with the principal objet of stablish whether correlations exists between electron binding energy and the formal charge. Natural polymer-based nanocomposites, silver nanoparticles act as nanofillers with potential in biomedical industry due to antimicrobial activity. Many methods for preparation, shapes or properties suggest the application. However, many references discrepancies of binding energy values for its most intense peak which refers the assignment of the corresponding metal oxidation states. This reported values still controversy due to the large of spectra published with wrong interpretation information. In this work, we take the case of Ag3d peak, using silver salts from diverse companies, silver nanocompounds and using references spectra in literature. The main peak data are fitted simultaneously, with recognized methods using AAnalyzer software. In this work XPS data concerning the Ag-O bond in homogeneous systems are analyzed, then oxidation states of silver are investigated for the nature of chemical bonding.

Keywords

X-ray photoelectron spectroscopy, silver nanoparticles, Ag3d peak fitting

Reference

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Author approval

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