

Valence band of graphite oxide

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We have investigated the electronic structure of graphite oxide by photoelectron spectroscopy at the Pohang Accelerator Laboratory, Korea. The typical sp^2 hybridization states found in graphite were also seen in graphite oxide. However, the π state disappeared near the Fermi level because of bonding between the π and oxygen-related states originating from graphite oxide, indicating electron transfer from graphite to oxygen and resulting in a downward shift of the highest occupied molecular orbital (HOMO) state to higher binding energies. The band gap opening increased to about 1.8 eV, and additional oxygen-related peaks were observed at 8.5 and 27 eV.

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