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New Frontiers in Multifunctional Material Science and Processing

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The Morphological Characterization of Mechanically Activated ZnO Powder

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The authors investigated the morphological characteristics of mechanically activated ZnO powder. ZnO powder was mechanically activated for 2, 5, 10 and 30 minutes in a planetary ball mill. Mechanical activation introduces lattice disorder and defects into ZnO hexagonal wurtzite structure. In order to determine specific surface area and pore volume, we performed N₂ porosimetry and SEM in order to investigate the microstructure of non-activated and mechanically activated ZnO powders. Using Kubelka-Munk function, UV-Vis spectra showed the reducing in band gap with activation time. ZnO powder activated for 5 minutes has the narrowest band gap.