

Geochemical Characterization of Coal, North and North Eastern Part of Auronga Coalfield, Jharkhand, India

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Abstract

In the present work an attempt has been made to distinguish the coals of Auronga coalfield. Coal core samples were collected from drill holes to categorize the coal in the area under investigation, through chemical composition utilizing the parameters in proximate and ultimate analyses. Properties such as moisture, ash, volatile matter and fixed carbon are evaluated. Moisture content in the coal seams ranges between 5.90% and 7.60%, the ash content varies from 35.60% to 48.40%, the volatile matter ranges between 21.30% and 25.30%, the fixed carbon ranges between 24.00% and 31.80%, The average value of moisture is 6.59%, ash content is 42.17%, volatile matter is 22.71%, and fixed carbon is 28.52%. The increased volatile contents are characteristic of lower-rank coals, while the decreased values are indicative of higher-rank coals. The results of ultimate analyses of each element are discussed in detail wherein, the concentrations of Carbon content ranges between 78.70% and 80.40%, the Hydrogen content ranges between 4.90% and 5.10%, the Nitrogen ranges between 1.60% and 1.70%, Sulphur ranges between 0.60% and 0.80% and Oxygen ranges between 12.20% and 13.90%. The result shows the average concentration of carbon as 79.61%, hydrogen 4.99%, nitrogen as 1.67%, and sulphur as 0.74% and oxygen as 12.96%. Based on the analytical results of coal is classified in the coal field under study.

Keywords: Coal, Proximate analyses, Ultimate Analyses, Geochemical Characterization