

MINERAL PHASES IN HYDROGENATION RESIDUE

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Inertinite rich coal samples (having more than 30 modal percent inertinite content) of low and medium ranks belonging to limnic and paralic facies were collected and investigated. Petrographic characterization and proximate analyses of the coal samples were done. 500 grams of each representative crushed coal samples with 1500 grams of earlier hydrogenated anthracene oil without addition of any catalysts were liquefied in a agitated autoclave at 450°C for 60 minutes in presence of 20 MPa hydrogen pressure with hydrogen flow about 20 l min⁻¹. The raw hydrogenated products after liquefaction were treated with tetrahydrofuran (THF) to obtain THF-insoluble components (hydrogenation residues were studied using reflectance microscopy and X-ray diffraction. The presence of organogenic constituents in the hydrogenation residue blurr the peaks of different mineral phases. The mineral phases of hydrogenation residues are of two types (i) some mineral as in feed coal, (ii) mineral formed during coal liquefaction. In all hydrogenation residues quartz belongs to the first category whereas pyrrhotite belongs to the second category. The carbonates (calcite, dolomite), kaolinite belong to either first and second category.

The classification, optical properties and origin of residual materials given by Steller, Kalkreuth and Hodek (1987) has been also expanded and slightly modified by the author in this work.