

COALS OF THE KAMA BASIN IN THE ORE FORMATION AT THE EAST EUROPEAN PLATFORM

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The Kama coal basin is situated at the East European Platform. Coal resources of the basin have been estimated at 2 Billion tons, and have higher than average natural amounts of precious elements. Coal accumulation took place in four stages: Late Devonian, Early Carboniferous, Late Permian, and Neogene. Late Devonian and Early Carboniferous coals are hard, and represented by durite, clarain-durite, durite-clarain and clarain. The Late Devonian coals have Ge (59 ppm), Mo, Cd, and Zr. The Early Carboniferous coals are considerable more than 900 m deep. Some coal deposits are metallogenic with Ge (20-25 ppm) or Ag (up to 8 ppm). Most of the microelements are found at average concentrations. The Late Permian and Neogenic coals are brown. Petrographically, the Late Permian coals are represented by clarain, durite-clarain, clarain-durite, and durain-fusite. High microelement concentrations are associated with infiltration. Pb, Ge, Cu, Ag, Mo, Cr, Ni contents are higher at layer's top and base. Concentrations of Ge can be as high as 170 ppm, Cu 113 ppm, and Ag 34 ppm. However, Ag content rarely exceeds 0.05 ppm. Geochemically, the Permian coals are characterized by the Ge-Cu-Ag-(Pb) association indicative of sedimentary copper shows of the region. The Neogenic coal is low quality and has no substantial microelement content.