

Liquefaction of oil shale in solvent media

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Thermal bitumenization of the Estonian Kukersite and Dictyonema oil shale samples was carried out in an autoclave in the presence of solvents. Liquefaction temperature and time were varied between 340 – 380°C and 1 – 10 hours, respectively. Various individual and binary solvents were used. Depending on liquefaction variables different yields of liquid, gaseous and solid products were obtained. The effect of temperature and time on products yield is described. Aqueous solutions as binary solvents were demonstrated to accelerate liquefaction compared with individual ones. Chemical composition of the liquid benzene-soluble product was characterized by chromatographic and spectroscopic methods. The yields of bitumen-like liquid products obtained from Kukersite and Dictyonema oil shale at the same liquefaction conditions differed considerably. Much higher liquid product yield was obtained compared with that in Fischer assay from both oil shale types.