

## **LIQUEFACTION OF ESTONIAN OIL SHALE KEROGEN IN SUB- AND SUPERCRITICAL ETHER MEDIUM 1. EFFECT OF ETHER TYPE ON THE YIELD AND CHARACTER OF DECOMPOSITION PRODUCTS**

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*Estonian oil shale kukersite kerogen was liquefied in an autoclave in the presence of diethyl ether, dioxane-1,4 and ethylene oxide at 250–350 °C to investigate the effect of various ether compounds on the yield and character of decomposition products. Depending on the type of ether used as a solvent and on the temperature of liquefaction, different yields of liquid, solid and gaseous products were obtained. In the case of diethyl ether and dioxane-1,4 the products are comparable with those when benzene, n-hexane, ethanol and other conventional solvents were used at the same temperature. As an exception, ethylene oxide gave very high yield of the benzene-soluble product. At 350 °C kerogen was completely converted into liquid benzene-soluble and gaseous products, and no coke was formed. The yield of the liquid benzene-soluble product surpassed 100 %, on kerogen basis, demonstrating that on kerogen liquefaction diethyl ether, dioxane-1,4 and ethylene oxide realize not only their solvolytical but thermochemical potential as well evoking kerogen alkylation and oxyalkylation. On kerogen liquefaction in the ether medium liquid and gaseous products chemically less or more modified depending on the extent of bilateral reactions between kerogen and solvent may be obtained.*