

## Effect of Oil Shale Alkylresorcinols on Physico-Chemical and Thermal Properties of Polycondensation Resins

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**Abstract :** Oil shale alkylresorcinols are formed as a by-product in oil shale processing. They are unique raw material for chemical industry. Polycondensation resins obtaining is one of the worthwhile directions of oil shale alkylresorcinols use. These resins are widely applied in many branches of industry such as wood-working, metallurgic, tire, rubber products, construction etc. Possibility of resins obtaining using overall alkylresorcinols will allow to cheapen finished products on their base and to widen the range of resins offered on the market. Synthesis of polycondensation resins on the basis of alkylresorcinols was conducted by several methods in the process of investigations. In the formulations a part of resorcinol was replaced by fractions of oil shale alkylresorcinols containing different amount of 5-methylresorcinol (40-80 mass %). Some resins were modified by aromatic alkene at the stage of synthesis. Thermal stability and degradation behavior of resins were investigated by thermogravimetric analysis (TGA) method both in an inert nitrogen environment and in an oxidative environment of air. TGA integral curves were obtained and processed in dynamic mode for interval of temperatures from 25 to 830 °C. Rate of temperature rise was 5°C/min, gas flow rate - 50 ml/min. Resins power for carbonization was evaluated by carbon residue. Physical-chemical parameters of the resins were determined. Content of resorcinol and 5-methylresorcinol not reacted in the process of synthesis were determined by gas chromatography method.

**Keywords :** resorcinol, oil shale alkylresorcinols, aromatic alkene, polycondensation resins, modified resins

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