
INFLUENCE OF MINERAL MATTER OF COAL PARTICLES ON COAL TAR WATERING

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The mineral part of the coal matter can serve as an important indicator of surface phenomena occurring during separation and preparation for processing of coal tar. Moreover, the analysis of the mineral part of coal tar and pitch during further processing shows that the ratio $\text{SiO}_2/\text{Al}_2\text{O}_3$ does not change. This makes it possible to determine by the value of the ratio the belonging of the clay component of the mineral part of coking coals to montmorillonite, if the ratio is in the range from 2 to 5,5 (typical case $\approx 3,3$). It is determined that the flotation concentrate yield and selectivity for the coal-montmorillonite system are lower than for the coal-kaolinite system, which is explained in terms of the theory of lyophobic colloid stability. The reasons for the deterioration of flotation due to the presence of bentonite in the mineral part of coal are considered, which is extended to the conditions of formation of coal tar emulsions stabilized by mineral-coal particles. It is shown that the absence of bentonite (montmorillonite) inclusions should be considered a typical case of the composition of the mineral part of coal. The results of determining the composition of the ash isolated from a sample of resin with a high degree of watering showed that in the analyzed case, the high stability of the "water-in-tar" emulsion is due to the presence of bentonite inclusions. To confirm the feasibility of determining the ratio of $\text{SiO}_2/\text{Al}_2\text{O}_3$ ash substances as an indicator of the influence of the mineral part of coal on the surface phenomena occurring in coal tar and its products, the case of atypical deposits during the filtration of coal electrode pitch before the formation of pellets was investigated. The analysis of sediments from the pitch melt revealed that the $\text{SiO}_2/\text{Al}_2\text{O}_3$ ratio was 2.7-3.2.

Keywords: coal matter, mineral part, clay inclusions, montmorillonite, surface phenomena, flotation, stabilization of «water-in-tar» emulsion.

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