DOI: 10.31081/1681-309X-2024-0-5-20-28 Specialty 161. U.D.C. 662.74:66.092 + 553.93

PROSPECTS FOR THERMOCHEMICAL PROCESSING OF SALTY COALS IN UKRAINE

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The article shows that the need for a comprehensive study of salty coal (SC) is largely determined by the technological challenges of using it for energy purposes. The combustion of salty coal causes slagging of boilers with subsequent destruction of metal parts and heat-insulating carborundum materials. From the experience of salty coal combustion, it is known that the presence of sodium in coal leads to a decrease in the slagging temperature of 750-850 °C. In addition, the combustion of SC causes sodium condensation on the walls of pipelines and heat exchange surfaces. Specific characteristics of the SC, on which its thermochemical processing depends, are formulated. It is shown that currently, for the use of SC in different countries, it is proposed to burn it together with other coal; the possibilities of creating new equipment and reconstruction of existing boiler plants for burning coal without preliminary cleaning are considered. It is noted that the use of various fluxes and rocks containing kaolin was also studied, and methods of salty coal gasification were developed.

Attention is paid to the developments of the Institute of Geology and Geochemistry of Combustible Minerals of the National Academy of Sciences of Ukraine (Lviv), where a bench-scale installation for studying the processes of thermochemical processing of lump coal has been created. A promising process for the thermochemical conversion of salty coal can also be the patented methods of gasification of water-coal pulp developed at the Institute, which involves both sodium leaching at the initial stage of the process when the pulp is introduced into the reactor and its rapid transition to a water-vapour extract directly during the high-temperature process of pulp gasification.

The article presents the principle technological schemes of the method of SC conversion, in particular, thermochemical processing of salty coal pulp, patented by IGGGK NAS of Ukraine. In addition to the surface processing of SC, salty coal deposits may be suitable for the use of underground gasification technology.

It has been determined that the most promising areas of thermochemical conversion of salty coal will be the gasification of water-coal pulp and underground gasification processes. Therefore, the problem of salty coal requires further scientific research.

Keywords: salty coal, energy purposes, combustion, slagging, thermochemical processing, coal pulp, underground coal gasification.

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