

THE SELECTION OF TECHNOLOGICAL BASIS OF DEEP PROCESSING OF COAL

© **M.O. Gordienko** (State Enterprise "Ukrainian State Research Coal Chemical Institute (UHIN)", 61023, Kharkov, Vesnina st., 7, Ukraine)

The article is devoted to the analysis of the possibility of expanding the raw material base of thermal energy, as well as meeting the demand for motor fuels and chemical products through the thermochemical processing of coal, the reserves of which are large enough and available for extraction and transportation. Moreover, in contrast to technologies such as methanization and liquefaction, the most promising type of deep processing of coal seems to be its gasification. This process is carried out in sealed devices of high power according to the technologies that have a long history of improvement on an industrial scale by the world's leading companies. It was emphasized that Ukraine has significant reserves of low-calorie coal (constantly expanding due to waste of coal preparation), the thermochemical processing of which can significantly expand the domestic energy base.

The basic principles of classification and technological foundations of existing industrial and industrial research installations for gasification of coal and similar materials are given. The basic diagrams and main parameters of the existing installations, which carry out the gasification process at temperatures below the melting point of the mineral (ash-forming) components of the raw material, are described - Sasol Lurgi and SES Gasification Technology (SGT).

Based on the data on the world experience in the operation of thermochemical coal processing units, it is shown that low-temperature (carried out at a temperature below the melting point of the mineral ash-forming components) gasification of various types of non-coking coal with certain technological solutions can be no less effective than more complex and expensive high-temperature technologies. There are grounds for believing that the efficiency of gasification with ash removal in a solid state can be further increased by using some of the technological capabilities available in coke production.

Keywords: brown coal, non-coking coals, thermochemical processing, gasification, efficiency, degree of carbon conversion, energy carriers, synthesis gas, environmental safety.

Corresponding author M.O. Gordienko, e-mail: yo@ukhin.org.ua