DOI: 10.31081/1681-309X-2022-0-3-4-15 Specialty 161. U.D.C. 338.3:662.749.2

COKING OF RAMMED COAL CHARGES. GAS COAL CONTENT ≤ 40%

© **N.V. Mukina** (Coke-chemical production of PJSC “ArcelorMittal Kryvyi Rih", 50095, Kryvyi Rih, Krivorozhstal st., 1, Ukraine), **D.V. Miroshnichenko**, Doctor of Technical Sciences (National Technical University "Kharkiv Polytechnic Institute", 61002, Kharkov, Kirpichev str., 2, Ukraine)

The article presents the results of studies of coking coal charges, characterized by the content of coals of the gas group up to 40%. The coal concentrates included in the composition of the coal charge for tamping the coke production of PJSC ``ArcelorMittal Kryvyi Rih" were studied. The initial samples were studied using a set of standardized methods with the determination of data from technical, petrographic and granulometric analysis, as well as the chemical composition of the ash. In addition, burst pressure values and Hardgrove grindability coefficients were determined in the samples taken. Based on the data obtained, the following indicators were calculated: sintering and coking properties of the charge, the average size of a piece of coal, the ash basicity index, and the basic-acid ratio.

The presence of coals in the raw material base of KHP "ArcelorMittal Kryvyi Rih" was established, differing both in terms of sieve, technical, petrographic and plastometric analyzes, and in terms of grinding capacity, bursting pressure and chemical composition of the mineral part.

It is shown that an increase in the sintering capacity, determined by both plastometric and petrographic methods, and the coking capacity of the charge leads to an improvement in the mechanical strength of blast-furnace coke. Graphic dependencies are built and mathematical equations are developed, they allow predicting the value of the mechanical strength of the coke obtained from them, according to the data of laboratory studies of coal charges.

A linear relationship has been established between the CRI and CSR indices of the obtained experimental coke. Mathematical dependencies have been developed and it makes it possible to predict with sufficient accuracy the values of CRI and CSR of laboratory coke according to the data of the basic-acid ratio and basicity index of the ash of the initial coal charge.

Keywords: coal, charge, rammer, laboratory tests, coke quality..

Corresponding author D. V. Miroshnichenko, e-mail: dvmir79@gmail.com