
THE ESTIMATION OF EFFICIENCY OF DESIGN SOLUTIONS FOR PREPARING A COAL CHARGE AND COKE SCREENING WITH A TAMPING TECHNOLOGY ON COKE BATTERIES № 5, 6 AT PJSC “ARSELORMITTAL CRANIAL HORN”

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This article presents some practical results of the industrial implementation of the technology of tamping a coal charge with consideration of the peculiarities of preparing a coal charge and coke screening.

The moisture content of the initial coal concentrates is from 7.5 % to 9 %, therefore, the mixture for tamping with a moisture content of up to 12 % (an important factor in ensuring the necessary strength of coal tampers) is obtained by supplying process water to the chute before the crusher. The project under consideration provides for monitoring and automatic maintenance of the given moisture content of the mixture for tamping with a moisture sensor. As a result of the analysis of production experience, it was found out that the moisture content of the charge, despite the large length of the conveyor path to the coal tower, varies slightly (not more than 0.2 %).

Changes in the technological part of the project were demanded by the installation of advanced crushers “Sandvik” with fine adjustment of grinding in the coal preparation shop. The analysis of experience has been performed.

For wet finely ground blends, the inefficiency of the currently used lining of the channels of the charge supply facilities and the coal tower with low alloy steel sheets has been revealed. At present, SE “GIPROKOKS” is carrying out a scientific research to develop recommendations on using modern materials with slip coefficients that provide reliable convergence of the wet finely ground mixture for the tamping technology.

It is shown that the technological scheme of sieving bulk coke on vibrating screens in one stage instead of roller screens allows reducing the dimensions of the coke sorting building in terms of one span and one floor in height. As a result of the reduction in the number of existing equipment, the energy consumption for screen drives, conveyor drives and ventilation system drives is reduced. The described one-stage sieving scheme for gross coke is characterized by a number of technological and technical and economic advantages and can be recommended for the future design, both for a new construction and for reconstruction of existing coke sortings.

Keywords: coking technology, rammed charge, low-sintering coals, charge moisture, charge crushing, humidification, coke, coke ramp, coke sorting, single-stage screening, vibrating screen.

* Author for correspondence, e-mail: demenkoviktor3@gmail.com