

# COKING OF STAMPED COAL BATCH. YIELD OF CHEMICAL PRODUCTS

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The yield and quality of coking products characterize the performance of coke plants. Prediction methods for the yield of coke and other coking products has been complicated by the significant variation in batch composition, because Ukrainian coke plants are making greater use of imported coal.

We consider method of Coking of small weighed portions [1] and method of Determination of the yield of coke and other coking products in a 5-kg laboratory furnace [2].

## **1. Coking of a weighed sample.**

We select 13 samples of coal concentrates employed at «Arcelor Mittal Krivoy Rog». With greater metamorphic development, the coke yield increases, while the yield of tars, raw benzene (the sum of benzene and unsaturated compounds), pyrogenetic moisture, and coke-oven gas decreases.

We develop equations for calculating the product yield from the elemental composition of the initial coal. On the basis of the equations, the product yield may be predicted by elemental analysis of the coal.

The equations correspond to elemental analysis of the initial coal in the loose state and do not take account of its compaction to  $\sim 1.15 \text{ t/m}^3$  on stamping.

## **2. Coking in a laboratory furnace.**

Product yield depends on the content of gas coal (the volatile matters) in the initial batch. With increase in content of gas coal (volatile matters), we note decrease in the coke yield and increase in the yield of tars, raw benzene, carbon dioxide, pyrogenetic moisture, and coke-oven gas. The yield of ammonia and hydrogen sulfide depends primarily on the composition of the coal's organic mass.

Equations are given for predicting the output of products from a stamped batch with the corresponding statistical indicators. With increase in the volatile matters, the coke yield declines. The yield of ammonia and hydrogen sulfide mainly depends on the composition of the coal's organic mass.

## **References**

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