
STUDY OF LABORATORY METHODS FOR DETERMINATION OF TECHNOLOGICAL PROPERTIES OF COAL TAR

© **F.F. Cheshko**, Doctor of Technical Sciences, **L.P. Bannikov**, PhD in Technical Sciences, **O.L. Borysenko**, PhD in Technical Sciences, **A.Yu. Martynova**, PhD in Technical Sciences (State Enterprise “Ukrainian State Research Institute for Carbochemistry (UKHIN)”, 7 Vesnina str., Kharkiv, 61023, Ukraine)

The article presents a critical review of laboratory control methods for determining the fractional composition of coal tar, which is important for planning the material balance of resin processing plants, adjusting the parameters of the technological regime for obtaining thermal fractionation products, etc. It is shown that to date, there is no standardised laboratory methodology in Ukraine for the direct determination of the yield of coal tar fractions. Alternative methods based on chromatographic analysis of the part of coal tar that is able to dissolve in the relevant substances allow determining the content of almost all substances that can boil out under conditions of industrial rectification rather quickly and with high accuracy. However, chromatographic methods of research do not allow obtaining a sample of non-boiling coal tar residue, which is currently the only alternative raw material for the production of a number of high-tech materials, sufficient in volume for analysis and study.

The article shows the need to develop standard conditions for laboratory fractionation of coal tar, which can be solved in two ways: creation of special pilot plants for the closest modelling of the production process (a basic description of such a plant developed at SE "UKHIN" is given), and improvement of a simpler method of laboratory thermal fractionation.

The results of the research carried out at SE "UKHIN" in the second direction are presented. In particular, attention is paid to the influence on the result of determining the method of heating the sample, the flask material and the final temperature of the distillation. The possibility of detecting impurities of foreign resinous products of coke production in coal tar by the properties of the non-boiling residue of laboratory distillation is demonstrated.

It is shown that the installations developed in both of the above directions do not allow achieving absolute compliance of the model with industrial conditions and are suitable only for comparing coal tar from different suppliers with each other or with a reference (standard) sample.

Keywords: measurement method, rectification, coal tar, development, analysis, flask heater, flask, chemical products, residue analysis.

Corresponding author: Cheshko Fedir Fedorovych, e-mail: cheshko@ukhin.org.ua
