DOI: **10.31081/1681-309X-2020-0-4-14-21** Specialty: 161.

THE PREPARATION OF VISCOUS ORGANIC MATERIALS OF COCOCHEMICAL ORIGIN FOR PROCESSING

© D.Yu. Bilets, P.V. Karnozhitskiy, Ph.D. in Technical Sciences, D.V. Miroshnichenko, Doctor of Technical Sciences (NTU "KhPI")

The aim of the work was to determine the influence of the content of organic coke-chemical by-products (for example, coal fossils) in a mixture with solid carriers - plant residues (for example, walnut shells) and brown coal on the technological parameters of their preparation for gasification, in particular on the amount of stuck mass of mixtures in mass mixer. The technological indicators of the materials under study are presented.

Graphic and mathematical dependences of the influence of the amount of coal fossils (CF) in a mixture with walnut shells (W) and brown coal (BW) on the amount of adhered mass of mixtures in a mass mixer have been developed. In order not to exceed the limit of 5% of the adhered mass, it is possible to add coal fossils ≤ 30% to the walnut shell and ≤ 15% to lignite.

It was found that during mixing there is a significant change in the granulometric composition of the studied mixtures. First, an increase in the content of coal fossils in the mixtures leads to an increase in the average particle diameter, that is, their agglomeration occurs. Secondly, walnut shells are more resistant to mechanical stress in comparison with brown coal, which is confirmed by a significant content of the class <1 mm in mixtures of BV + KF (18.50 - 41.50%) compared to mixtures of Sh + KF (0 , 03 - 0.16%).

It is shown that the mixtures Sh + KF and BV + KF behave differently when they are released from the bunker. The pouring out time, the angle of repose and the bulk density of the W + KF mixture change linearly under the influence of an increase in the number of coal fossils and the mixing temperature. The dependences of indicators for a mixture of BV + KF on the content of coal fossils in it and the mixing temperature are more complex and cannot be described by linear or polynomial equations.

Keywords: coal fossils, plant residues, brown coal, mass mixer, adhesion, particle size distribution, pouring time, angle of repose, bulk density.

Author for correspondence: **D.Yu. Bilets,** *dariabilets@gmail.com*