



PGAA METHOD FOR CONTROL OF THE TECHNOLOGICALLY IMPORTANT ELEMENTS AT PROCESSING OF SULFIDE ORES

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Many precious elements (Au, Re, Pt, Pd, Ag, Cu, Ni, Co, Mo) in ores mainly exist in the form of sulfide minerals and the flotation method is often used for processing of such kind of ores. To enhance the efficiency of the process it is very important to carry out the operative control of the elements of interest at various stages of ore processing.

In this work the results of studies for developing methods for control of technologically important elements at processing and enrichment sulfide ores, which content the gold, copper, nickel, molybdenum in the ore-processing plants of Uzbekistan. The design of transportable experimental PGAA device on the basis of low-power radionuclide neutron source (^{252}Cf) with neutrons of 2×10^7 neutr/sec allowing to determine element content of the above named ores and their processing products is offered.

It is shown that the use of the thermal neutron capture gamma-ray spectrometry in real samples and technological products allows prompt determination of such elements as S, Cu, Ti and others, which are important for flotation of sulfide ores.

Efficiency control of the flotation processing of sulfide ores is based on quick determination of the content of sulfur and some other important elements at different stages of the process. It was found that to determine elements the following gamma lines are the most suitable – 840.3 keV for sulfur, 609 keV and 7307 keV for copper and 1381.5 keV, 1498,3 keV and 1585.3 keV for titanium.

Based on the measurements of original ores, concentrates of various stages of flotation and flotation slime the possibility for prompt determination of S, Cu and Ti content and thus to get necessary information on the efficiency of the flotation process was shown.



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NUCLEAR ANALYTICAL TECHNIQUES FOR CONTROL OF IMPORTANT TECHNOLOGICAL ELEMENTS FOR EXTRACTION OF AMMONIUM PERRHENATE

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One of the important issues for insuring efficiency of technological process for production of chemical substances is analytical control. For passing extraction of rhenium in ammonium perrhenate form from waste sulphate solutions of copper-smelting process at Almalyk Mining and Metallurgical Complex (AMMC), elemental analysis is required at various stages of technology.