
# The Results of Enrichment of Samples of Ore Deposits Eshlik Using the Traditional and Local SI Reagent

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ABSTRACT

In job the results of study of material structure and enrichment of tests of ores of deposits Eshlik are given.

As a result of the studies, recommended regimens for enrichment of ores were developed using a combination of a traditional collector and "CI" at a flow of 50% of the mixture of xantogenes and concentrates of higher quality were obtained

**Keywords:** Enrichment, material structure, the chemical analysis, the spectral analysis, therational analysis,division on the size, the mineralogical analysis

In the Republic of Uzbekistan, at enrichment factories, in the enrichment of various ores, traditional reagents are used abroad.

Currently, there was a need to test local reagents and their introduction into industry. Replacing traditional reagents with new ones - import -substituting reagents are relevant. The creation of reagents made on the basis of local raw materials will replace scarce traditional reagents and save a significant amount of currency.

As the main reagent - the collector, the BKK is used, as a foaming agent T - 80 (oxal), or T - 92. In this work, we include the results of studies on the enrichment of copper samples of ore of the Eshrik deposits with traditional and local "SS" reagents. Ore samples are prepared according to the standard methodology.

In order to study the material composition of samples, ore samples were selected for mineralogical analysis, medium samples were prepared to perform spectral, chemical, granulometric analyzes.

A chemical analysis in the ore sample of the Eshrik deposits are defined in (%): $SiO_2$ – 58,22; $Fe_{com.}$ – 6,17; $Fe_2O_3$ – 6,82; FeO – 3,1; $TiO_2$ – 0,4; MnO – 0,14; $Al_2O_3$ – 14,26; CaO – 1,70; MgO – 3,2; $K_2O$ – 4,74; $Na_2O$ – 0,32; $S_{com.}$ – 0,62; $S_{sulf.}$ – 0,56; $SO_3$ – 0,15; $CO_2$ – 2,75; $P_2O_5$ – 0,3; $H_2O$ – 0,98; Си – 0,48; Pb – 0,04; Zn – 0,05; As – 0,02; Mo – 0,007; Au – 0,8 y.e.; Ag – 7,94 y.e. and p.p.p. – 10,6. In addition, spectral analysis established: (in %): Ni - 0.003; Co – 0,001; V – 0,002; Cr – 0,03; Zr – 0,006; Ga – 0,002; Be < 0,001.

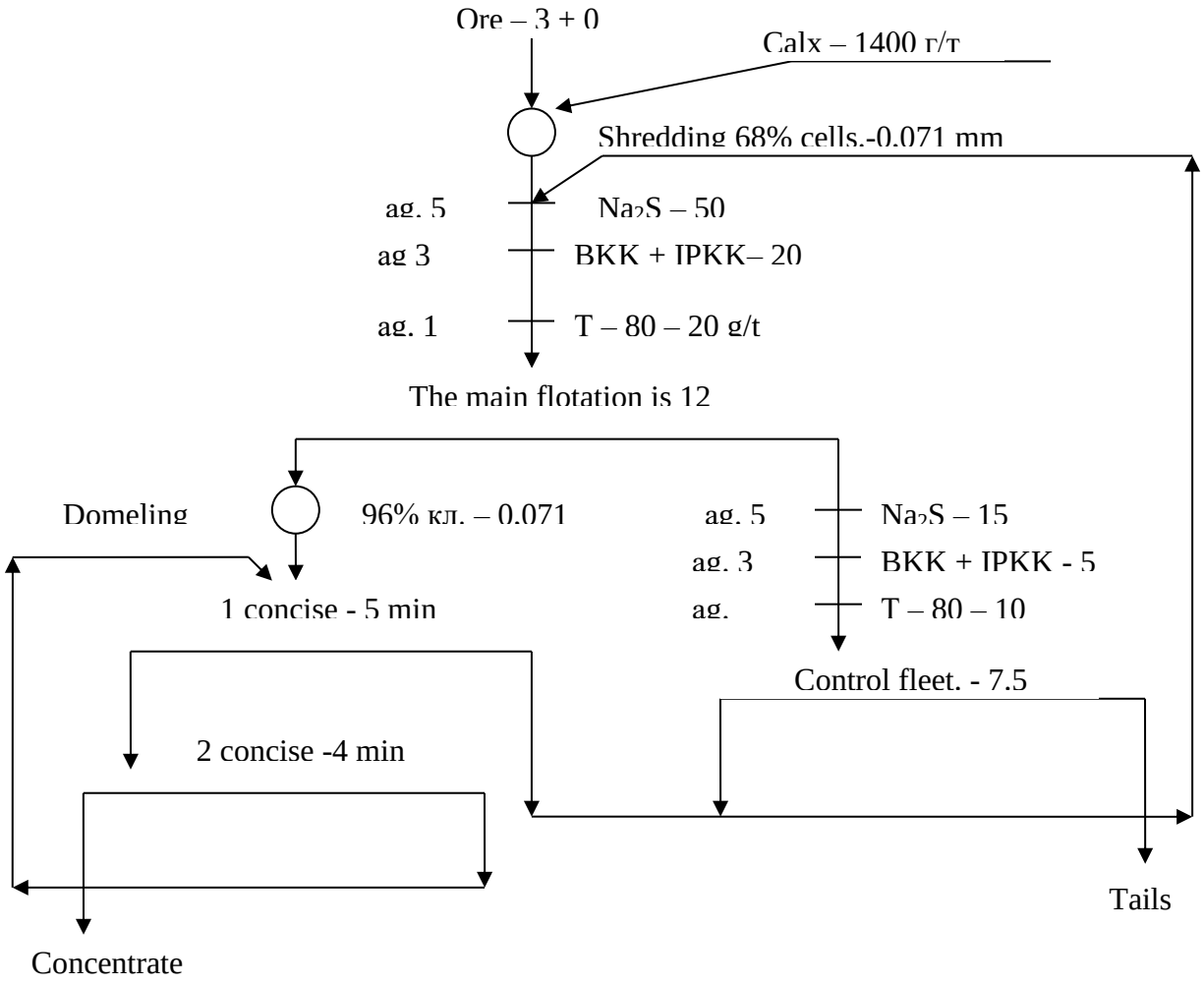
The mineral composition of the ore samples is quite simple, the main ore minerals in them are pyrite, chalcopritis and molybdenitis. A noticeable amount of magnetite, hematite, oxides and hydroxides of iron (gutitis, hydrosthetitis, lemonitis) is also noted. The secondary minerals include gallive,

sphalaris, faded ore, chalcosine, borin and kovellin. The main non -metallic mineral samples are quartz, field sleepers, chloride and sericitis; secondary - biotite, horn fault, carbonates.

Chalcopitite is the main industrial and valuable mineral of the ore studied. Its content in the sample is 0.9 %. Molibdenitis is 0.01 % of ore. This mineral is unevenly distributed in a plain material and is confined to non -metallic minerals.

Halkin - its content is 0.05 % of the ore. This mineral is closely connected with chalcopyrite. Kovellin - the content in the sample is 0.03 %. It forms a few subtle pardons, hairy veins in non -fiber mass, develops along with chagosin in chalcopyric, less often pyrite. High content in the samples of the ore of sericitis, muscovite (8 %) and chlorite (15 %) worsen the technological properties of ore.

Scheme of flotation enrichment of copper ores.




Copper ore was flotored according to the schemes depicted in Fig. 1 and 2. Copper minerals flotied with a mixture with buotyl xanthogenate of potassium (BKK) with an isopropyl xanthogenate of potassium (IPKK) in a ratio of 1: 1. In the developed mode, experiments are given in open and closed cycles (on the principle of a continuous process), the results of which are given in Table 1

Table 1.

The results of experiments of flotation of samples of ore of the field of the Eshlik using traditional reagents in optimal mode.

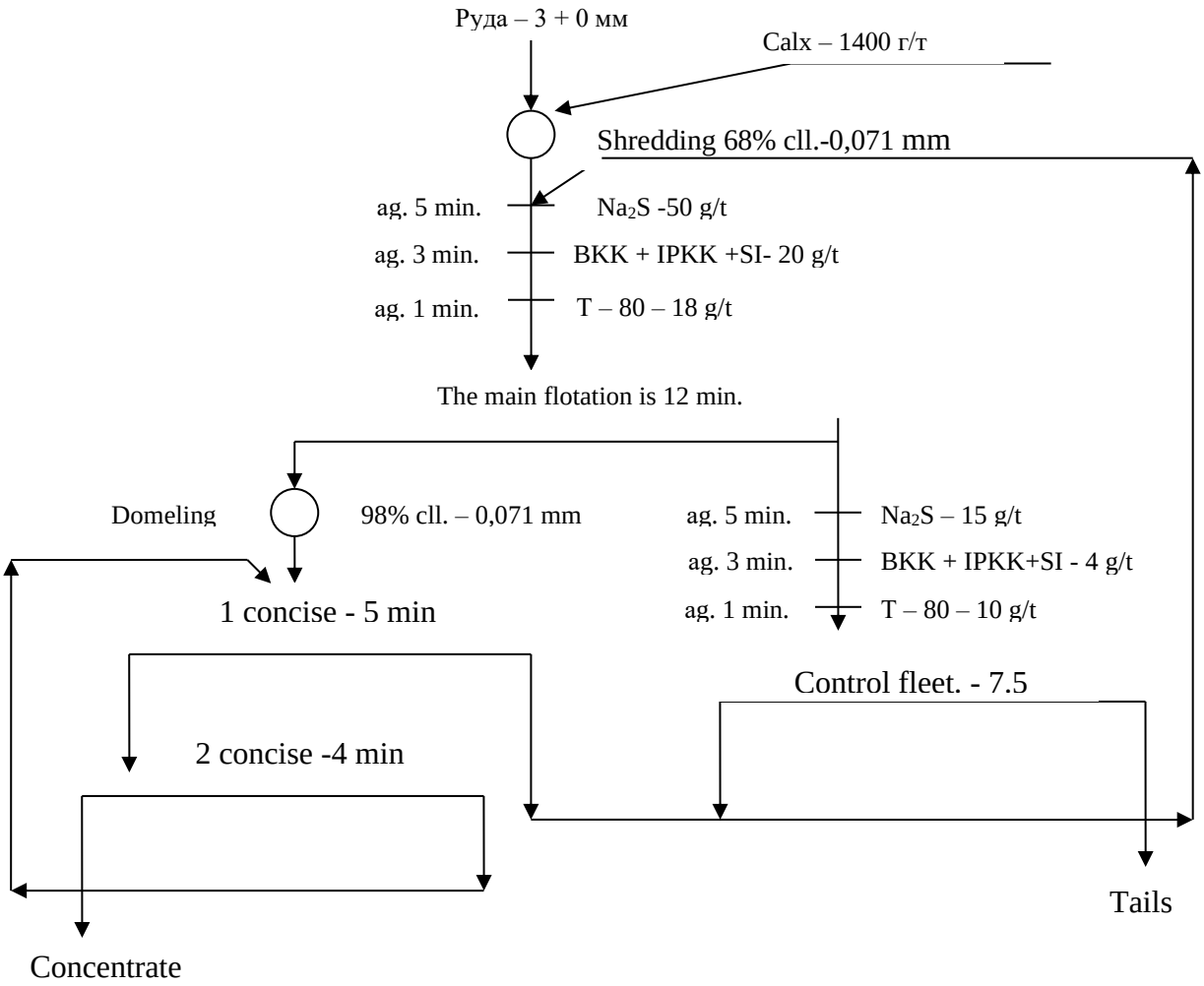
| Products | Exit, % | Content, % | | Extraction, % | |
|---|---|---|---|---|---|
| | | copper | sulfur | copper | sulfur |
| Open cycle | | | | | |
| Concentrate | 2,0 | 18,6 | 34,56 | 84,3 | 10,6 |
| Promproduct1 | 5,4 | 0,26 | 3,86 | 3,0 | 3,2 |
| Promproduct2 | 3,1 | 0,62 | 7,15 | 4,2 | 3,4 |
| Promproduct3 | 6,5 | 0,23 | 25,76 | 3,2 | 25,7 |
| Tails | 83 | 0,051 | 4,49 | 9,3 | 57,1 |
| Ore | 100,0 | 0,48 | 6,52 | 100,0 | 100,0 |
| Closed cycle (according to the principle of a continuous process) | | | | | |
| Concentrate | 2,5 | 17,57 | 35,86 | 87,3 | 13,7 |
| Tails | 97,5 | 0,067 | 5,81 | 13,7 | 86,3 |
| Ore | 100 | 0,48 | 6,56 | 100,0 | 100,0 |

Table 2

The results of experiments of flotation of samples of ore of the field of the Eshrik using the SI reagent.

| Products | Exit, % | Content, % | | Extraction, % | |
|---|---|---|---|---|---|
| | | copper | sulfur | copper | sulfur |
| Open cycle | | | | | |
| Концентрат | 1,4 | 24,46 | 42,71 | 79,6 | 9,2 |
| Promproduct1 | 4,6 | 0,39 | 7,07 | 3,6 | 5,0 |
| Promproduct 2 | 2,8 | 0,79 | 11,38 | 4,4 | 4,9 |
| Promproduct 3 | 5,9 | 0,36 | 31,73 | 4,2 | 28,8 |
| Tails | 85,3 | 0,048 | 3,97 | 8,2 | 52,1 |
| Ore | 100,0 | 0,50 | 6,5 | 100,0 | 100,0 |
| Closed cycle (according to the principle of a continuous process) | | | | | |
| Concentrate | 1,8 | 22,96 | 42,27 | 86,1 | 11,6 |
| Tails | 98,2 | 0,067 | 5,91 | 13,9 | 88,4 |
| Ore | 100,0 | 0,48 | 6,56 | 100,0 | 100,0 |

Scheme of flotation enrichment of copper ore according to the principle of a continuous process




As a result of the studies, recommended schemes of flotation of samples of ore ores of the Eshlik field using a combination of a traditional collector and SI, when saving BKK + IPKK at a level of 50% and higher quality fleet -concentrates were obtained.

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