MINERAL COMPOSITION AND FLOTATION TESTS OF SULFIDE ORE FROM THE "PLAVICA" DEPOSIT, REPUBLIC OF NORTH MACEDONIA

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Abstract

The Plavica deposit is located in the northwestern part of the Zletovo ore field, which belongs to the central part of the Kratovo-Zletovo volcanic area in the Republic of North Macedonia. Two mineralogical-geochemical ore zones have been formed in the deposit: upper one - oxide (secondary) with an Au content of 0.8 to 2 gr/t and lower one - sulfide (primary). Analysis of sample taken from the sulfide (primary) mineralogical-geochemical zone contains 0.31% Cu and 0.27 gr/t Au.

During the flotation of the sulfide ore, copper concentrate and tailings were obtained, which consisted of pyrite and numerous secondary copper minerals such are chalcocite, covellite, malachite, brochantite, alunite, kaolinite and quartz. It was determined that part of Cu and Au goes into the waste products, in which the content is 0.193% and 0.160 gr/t, respectively. Based on this, it is recommended that new approach attempts should be made for flotation study of waste products, using innovative technologies for this purpose.

The two types of concentrates obtained – copper-gold and pyrite (gold-copper content) will go for metallurgical processing. This will increase the economic value of the sulfide ore reserves in the Plavica deposit and efficiency of its development in the future.

Keywords: *Plavica, mineral composition, sulfide ore, flotation, waste.*