



The role of thionic bacteria in modern world

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Abstract

The article considers the problems of environmental safety in the processing of metallurgical wastes. In nature, heterotrophic microorganisms are widespread, which affect minerals and rocks. Bacteria accelerate the formation of the oxidation zone and are capable of carrying out processes leading to the destruction of stockpiled slag waste. The study of the distribution of thiobacteria, their physiology and laboratory experiments on the oxidation of sulfuric ore showed that the oxidation process is led by two groups of bacteria: *Thiobacillus* and *Ferrooxidans*. The use of oxidative activity of thiobacteria leads to a reduction of alienated land due to the metallurgical waste stored on them. The paper describes the mechanism of bacterial leaching and the main growth phases of these microorganisms. The study of these processes is important for theoretical concepts of the circulation of elements on the Earth. The work shows the effect of microorganisms on Karabash slags. In addition, many microbiological processes are important for mining. At present, the main stock of Russian ores, including gold, is in indigenous sulfide deposits, these sulfide ores are the largest sources of mineral raw materials, both for precious and non-ferrous metals. The bacterial leaching of sulphide ore of the Festivalnoye deposit was investigated. It is established that in the semi-continuous bioleaching regime, complete destruction of arsenopyrite occurs, where hundreds of parts of inclusions of precious metals are often present. The article also considers the possibility of using the preliminary biooxidation of gold-containing concentrate with the use of thiobacteria.

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