

## CREATING AN EFFECTIVE TECHNOLOGY IN THE SEPARATION OF VALUABLE COMPONENTS IN THE COMPOSITION OF COPPER ENRICHMENT FACTORY WASTE

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**Annotation:** Today, a huge amount of minerals is being mined for the production of metals. One of the leading directions of non-ferrous metallurgy is the copper industry. As copper production increases, the increase in industrial emissions increases. Around the world, enrichment waste, including post-flotation waste, slag waste, etc., are considered one of the pressing problems in many developed countries. However, the presence of precious metals in the composition of these seemingly unnecessary waste as a source of raw materials they are of more and more interest today.

**Keywords:** slag, slag, enrichment, flotation, technogenic, precious metals, pyrometallurgy.

Currently, the processing of mineral and raw material resources is constantly growing with an increase in the production capacity of enterprises and the demand for commodity products, which leads to an increase in the volume of pollution of the environment (waste, cuttings, slags, etc.), and environmental requirements are increasingly attracting sources of secondary man-made minerals[1]. Waste is a long-term source of environmental pollution. The main goal is not only to recycle waste from enrichment plants for the purpose of profit, but also to free the environment from harmful waste. Today, the development of inexpensive and effective methods of waste treatment is an urgent issue[2]. A few decades ago, such quantities were considered insignificant, and waste was not considered, since their processing was technologically difficult and simply useless. Including flotation waste, slags and other waste, which we are mainly engaged in, are now considered as promising man-made raw materials. New unconventional approaches are needed that allow the extraction of precious metals in waste as well as the creation of economical and affordable technologies, otherwise the whole idea will lose all meaning[3].

JSC "olmalik KMK" has a significant increase in waste slag in copper production and waste slag formed after flotation, and as a result, several thousand tons of waste slag are accumulating in the warehouses of the enterprise every year[4]. It is necessary to implement effective technology in the maximum separation of valuable components in the composition of such waste slags. For many years, scientists from not only our republic, but also many other countries have been studying the complex processing of waste, including slag in copper production.

However, to date, no processing technology has been implemented. At the enterprise "olmalik KMK" JSC, flotation is carried out for the purpose of further processing of slag from copper smelting furnaces. In this case, the average copper content in slag is 0.8 - 1.5% Cu. After flotation, we can see not only copper, but also other precious metals there, if we consider precious metals that are not floated in a certain amount in the composition of waste slag, but also go out into waste. After flotation, waste slag contains on average 0.45-0.50% Cu, Mo - 0.0070%, Au - 0.1-0.2 g/t, Ag - 0.2-0.3 g/t, S - 0.80%, Fe - 35-45%,  $Al_2O_3$  - 6%,  $MgO$  - 1.29%,  $CaO$  - 2.20% and others. Thus, it is necessary to improve the technology of copper production and extract precious metals such as copper, gold, silver from waste slag, to implement optimal and affordable technology. The improvement of the technology of complex processing of precious metals from the composition of waste before sending waste from

waste slag from pyrometallurgical furnaces from the re-enrichment process to construction enterprises is considered.

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