



MANUFACTURED WASTE RECYCLING MODERN STATE OF THE PROBLEMS

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<https://doi.org/10.5281/zenodo.8431599>

Abstract

Manufactured waste recycling is a critical aspect of sustainable waste management. This article reviews the current state of the challenges and innovations in recycling manufactured waste. The burgeoning quantities of manufactured waste, driven by rapid industrialization and technological advancements, pose significant environmental and social challenges. The need for efficient and environmentally responsible waste management solutions is more pressing than ever. This article examines the key issues in manufactured waste recycling, explores emerging technologies and strategies, and discusses the importance of a circular economy in addressing this global problem. By understanding the complexities of manufactured waste recycling and promoting innovative solutions, society can reduce its environmental footprint and transition towards a more sustainable future.

Keywords: Manufactured Waste, Recycling, Sustainability, Circular Economy, E-waste, Industrial Waste, Waste Management, Innovations, Environmental Impact, Regulations.

In this dissertation work, man-made waste is defined as low-quality ores stored in warehouses, waste dumps, slag collectors, and minerals or mineral raw materials suitable for consumption and profitable use collected during the operation of mining and metallurgical enterprises.

The problem of waste processing of mining enterprises is well known. This problem is also relevant in our country. Uzbekistan's large mining and metallurgical enterprises such as Navoi and Olmaliq are considered to be the largest enterprises in the world, both with economic indicators in their production and with the complexity and innovation of the issues solved in the process of operation.

Despite the use of the latest modern technologies, mining and metallurgical plants are not waste-free. At present, as a result of processing ores for many years in the landfills of the Almalyk Mining and Metallurgical Combine (OKMK), about 960.5 million tons of flotation waste containing 0.17% copper and 12.4 million tons of pyrometallurgical process slag containing 1.4% copper have been collected. First, they occupy very large areas and pollute the environment to a certain extent, and secondly, they are man-made deposits that store precious elements of non-ferrous, rare and rare metals.

At the dump of the copper beneficiation factory (MOF) of the Almalyk mining and metallurgical combine, 164 million tons of waste were collected in a 100-meter beach zone at a distance of 8 km², which

it contains an average of 0.18-0.2% copper, 0.0029-0.0033% molybdenum, 0.3-0.4 g/t gold, 1.0-1.8 g/t silver.

A view of the landfill is presented in Figure 1.



Figure 1. A view of the MOF landfill

The beneficiation wastes formed during collective beneficiation of copper-molybdenum by the flotation method from the copper-molybdenum ores of the Kalmakir mine occupy a large area. This leads to the flooding of surrounding areas and the pollution of underground water.

The peculiarity of this type of product is that it is easy to obtain, all flotation wastes lie on the surface, are compactly located and do not require large costs in mining, difficult and expensive process - crushing of a large amount of mass, charging of drilling-blasting wells, drilling, etc. is not used. A number of processes that occur during the formation of a landfill lead to the concentration of metals located in them, and the process of studying it becomes difficult.

In a word, the justification and development of mining and metallurgical waste processing technologies is a complex scientific and technical problem. The relevance of its solution depends on the complexity of the mining-technical and mining-geological conditions of mineral extraction, the growing demand for these products in the international market, and their important importance in the national economy of our Republic.

The problem of rational use of natural resources and environmental protection is always in the attention of the leaders of the Republic of Uzbekistan. In the years of independence, a number of laws were adopted on the use of environmentally friendly technologies in the exploitation of mineral deposits, the comprehensive exploitation of the natural resources of our Republic, and the processing of industrial waste.

It has been determined that the wastes of the mining and metallurgical industry are characterized by the following: the large volume of wastes that store valuable components of mineral raw materials, which allows them to be included in the type of man-made mines and in the type of facilities for the complex use of mineral raw materials, their reuse ore does not require costs for preparation for extraction and enrichment, waste processing allows freeing up large areas occupied by them and reducing their negative impact on the environment.

The main factor of attracting enrichment waste to processing is the economic feasibility of their processing, which can be implemented by using advanced innovative technologies..

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