

THE ELECTROMAGNETIC-FLOTATION ENRICHMENT OF IRON-MANGANESE ORE USING A MIXTURE OF HYDROXYHYDRYL AND SULFHYDRYL COLLECTORS

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Flotation enrichment of iron-manganese ore has been carried out using mixtures of sodium diisopropyldithiophosphate and sodium oleate. From the flotation enrichment data it follows that the following regime of air flow $60 \text{ l}\cdot\text{h}^{-1}$, impeller rotation frequency 40 Hz, the soda consumption $1750 \text{ g}\cdot\text{t}^{-1}$, the consumption of collectors' mixture $100 \text{ g}\cdot\text{t}^{-1}$ is required to obtain a collective iron-manganese ore concentrate, while the iron content in the collective concentrate is 26%, in iron extraction is 42%. According to the results of selective flotation of iron-manganese ore using a mixture of sodium oleate and sodium diisopropyldithiophosphate as a collector, a high impeller rotation frequency of 40 Hz with an average aeration of the pulp of $30 \text{ l}\cdot\text{h}^{-1}$ allows to exclude the foaming agent from the flotation scheme, since sodium oleate has high foaming properties. The increasing in the selectivity of metal extraction and the degree of electromagnetic flotation enrichment of ores is achieved on the one hand by regulating the reagent flotation regime of iron-manganese ore, and, on the other hand, by increasing the intensity of the magnetic field due to the use of an alternating current of the industrial frequency, as well as cores made of St5Sp steel.

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