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## SOME EFFECTIVE METHOD OF PROCESSING COPPER CONCENTRATE

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**Purpose.** Using the special methods of processing it is proposed the forming of copper concentrate for further industrial usage.

**Methodology.** The studies were carried on using continuous smelting of copper concentrates for the production of copper from sulfide concentrates by pyrometallurgical method.

**Findings.** The article presents an analysis of copper production and demand. Various installations of continuous smelting of copper concentrates, their advantages and disadvantages are considered. An installation for continuous production of copper from sulfide concentrates by pyrometallurgical method is proposed. Studies have shown that the conditions of the proposed production are close to the conditions of thermodynamic equilibrium, which are favorable for the use of such a smelting furnace in a continuous cycle of copper production. The use of the described smelting process and unit increases the technical and economic (technological) performance of the entire process of continuous copper production. The economic and ecological aspects of copper production are considered.

**Key words:** continuous smelting, pyrometallurgical method, efficiency, copper concentrate

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## IMPROVING THE EFFICIENCY OF PNEUMOPERCUSSION MACHINES

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**Purpose.** Using the special pneumopercussion machines it is improving the efficiency of the process of the thermodynamic processes in the working chambers.

**Methodology.** The studies were carried on thermodynamic processes of compressed air work in the working chambers of pneumopercussion machines for the increasing their efficiency.

**Findings.** The article presents efficiency of using compressed air energy in the operation of existing pneumopercussion machines is 15-20%, which significantly increases the cost of drilling operations. Therefore, an increase in efficiency pneumopercussion machines is an important technical challenge. The article discusses ways to increase the efficiency of pneumopercussion machines by combining the most effective thermodynamic processes of compressed air work in the working chambers of pneumopercussion machines and a new technical solution for the design of pneumopercussion machines is proposed. The design of a pneumatic hammer has been developed, which implements the combination of the most effective thermodynamic processes in the chambers of pneumopercussion machines. The design of a new pneumatic hammer is presented, which consumes twice less compressed air during operation than any of the existing hammers with the same frequency and impact energy. Its work and the method of calculating geometric parameters are described.

**Key words:** pneumopercussion machines, pneumatic hammer, efficiency, compressed air

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