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Polymetallic alloy preparation from basalt and siltstone rocks by electric arc method

In recent decades, there is an increase in the output of structural materials such as ferrous metals, aluminum, copper, plastics; also new other materials used in rocket and space technology. Consequently, the production of a polymetallic alloy with a high temperature resistance of 2200-2500 °C is an important technical task and very relevant at the present time.

The work on the creation of a polymetallic alloy is promising for a number of reasons: a) raw materials are cheap and its reserves are practically unlimited; b) the polymetallic alloy preparation technology is fundamentally different from the preparation technology of analogous metals.

In this work polymetallic alloys with initially high hardness of HRC 60 ... 65 were prepared from basalt and siltstone rocks using an electric arc method. The chemical composition of a polymetallic alloy and metals based on it, like gold, silver, titanium, molybdenum, tungsten, hafnium, yttrium, platinum, etc., was investigated.

Application of these metals is of interest to the industries that are engaged in the development and production of the rocket and space industry, the production of modern cutting tools, radio electronics, etc.

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