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Gold Deposits

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Gold mining is the oldest sphere in the mining industry. Man got acquainted with this metal tens of thousands of years ago. Gold is a yellow metal. It is an inert chemical element that is not exposed to destructive action of air and water. Precious metal is naturally found both in pure gold deposits and in combination with other non-ferrous metals. Sometimes gold grains are found among sand and gravel, but most often - in the form of veins in the rock. One of the forms of finding gold is in the form of nuggets. Nuggets are solid pieces of metal of arbitrary shape. They can be both small – weighing several grams, and gigantic – tens of kilograms. The bulk of the gold – about 2,000 tons per year – is mined in gold mines. After grinding the rock, the metal is extracted in one of several ways, most often by cyanidation [1].

Indigenous deposits are considered the primary source of gold. They are divided into three types: igneous, pegmatite and scarn deposits. Deposits of the first type are formed as the result of magmatic processes occurring inside the earth's crust. Magma contains gold mixed with many other elements, so pure gold is very rare in igneous rocks. Pegmatite and scarn deposits are also indigenous, but they are not very popular in the field of mining. Firstly, because of the small number of this deposits, and secondly, because of the very low gold content.

Rocks can collapse by the destructive mechanical action of water, wind and temperature. With the constant influence of these factors, gold «departs» from the indigenous deposit and settling in lowlands, crevices and other areas. This is how

placer gold deposits are formed. Placer deposits can be residual and alluvial. Residual deposits are formed near the site of destruction of the indigenous deposit. Alluvial placers are those pieces of gold that were carried by a river stream to another place.

The metamorphosed deposits occupy a special place in gold mining. Indigenous gold deposits in some cases are able to change their properties. Metamorphosed deposits are formed by pressure, temperature and tectonic deformation. According to modern research, some deposits that were thought to be «common» are in fact metamorphosed, and they occur much more frequently than previously thought. Metamorphosed deposits tend to hold the largest reserves of gold [2].

For millennia, gold has been used to make jewelry and coins. Precious metal has the highest resistance to aggressive environments, electrically and thermally conductive. Gold is technologically advanced. Golden coatings are easily applied to metals and ceramics. It is well soldered and welded under pressure. All combinations of useful properties of gold have caused widespread use in various industries, look like electronics, communication technology, chemistry, space and aviation technology [1].

References:

1. Сидорова, Е. И. Золото как минеральное вещество / Е. И. Сидорова, А. С. Мельник; науч. рук. Т. М. Уласик // Актуальные проблемы энергетики: материалы 72-й научно-технической конференции студентов и аспирантов / Белорусский национальный технический университет, Строительный факультет. – Минск: БНТУ, 2016. – С. 45 – 48.
2. Добывающая промышленность [Electronic resource]. – Mode of access: <https://dprom.online/metalls/mestorozhdeniya-zolota-vidy-i-proishozhdenie>. – Date of access: 13.04.2022.