

NATURAL BITUMENS AND PROSPECTS OF THEIR INVESTIGATION

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In Azerbaijan, bitumen deposits are widespread mainly in the oil and gas regions (Absheron, Shamakhi-Gobustan and Ashagi Kur) and mud volcanic zones [1]. They are genetically associated with oil.

The problem of replacing artificial oil technobitumen, which is widely used in a number of industries, with natural oil bitumen remains a little-studied area of research in Azerbaijan.

According to the classification of bitumen, there are following types of natural bitumens in the country: asphalts, asphaltites, hard bituminous rocks (dirt), viscous bituminous rocks (wet-dirt) and bituminous sands associated with natural oil asphalts [2; 3].

One of the latest research directions in the investigation of bitumens is the study of their metal-bearing properties. It is known that bitumen often contains industrially concentrated vanadium, copper, nickel, molybdenum, silver, mercury, rhenium, scandium, rare earth and radioactive elements and other metals. Such bituminous rocks can be fully considered as ores of certain metals, and some of them are already produced on an industrial scale abroad [2; 3].

In order to ensure the development of the industrial utilization area of natural bitumen in Azerbaijan, first of all, a reliable raw material base must be created. Therefore, scientific research of the bitumen content of oil sediments in Azerbaijan is important so that, it is based on certain regularities of location, formation and genesis of bitumen deposits.

As a result of complex researches carried out by researchers in Azerbaijan in 1980s, more than 50 chemical elements were discovered in the content of bitumen and bituminous rocks of the Republic. Of them, fine metals (Au, Ag), colorful metals (Cu, Zn, Pb, Ca, Ni, V, Mo, W, Ti, Sc, Sr, Sn, Ba), ferrous metals (Fe, Cr, Mn), light metals (Al and Mg), radioactive (U and Th) metals, rare metallic elements (Sr, Rb, Nd, Ce, Sm), Hf, La, Tu, Tb, Yb, Y, Lu, Eu, Ge) and non-metals (As and St) attract more

attention. [4]. Some metals – Mg, Cr, Au, Ag, Cu, V, Sc and Th are even more noteworthy. Their amount in Azerbaijani bitumen and bituminous rocks is much higher than the amount of those elements in the Earth's crust and sedimentary rocks.

There are a certain amount of oil-bitumen parent rocks within the territory of Azerbaijan, in which the bitumen with a relatively low percentage (3-8%) can be used in road construction.

In Azerbaijan, there is a great potential for the production of useful materials such as oil, oil products, oil-bed waters, a number of non-ferrous, fine and rare metals Au, Ag, V, Cu, Mg, Sc, Th, Hf, Ge from the content of bituminous rocks and such useful materials as sulfur, soda ash, boron, halogens of building materials and it must be used purposefully and efficiently.

In addition to these components, bituminous rocks containing significant amounts of bromine, iodine, borates, naphthenic acids, soda ash, as well as such precious metals as copper, zinc, lead, silver, nickel, magnesium, titanium, molybdenum, vanadium, strontium, tin, selenium [5] has been determined. Besides all this, the bituminous rocks of Azerbaijan are expected to contain at least 1 million tons of oil.

References

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