UDC 622. 17:504.064.4

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ANALYSIS OF METHODS OF PRODUCTION OF COLOURED METALS BY PROCESSING OF PEDIGREE DUMPS

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There are considered and analyzed the different methods of production of the coloured metals by processing of pedigree dumps of coal mines. The basic lacks of applied in indicated present tense of technologies of processing, the ways of optimization of these processes are set.

Keywords: waste bank, silumin, technological process, methods of improvement, stone, magnetic separation

Entry. Metallurgical and mining industries are major industries of industrial production in our country. They, as component part, satisfy considerable part of necessity of country in technological raw material and power fuel. Taking into account the considerable volumes of products which is obtained and concomitant to them wastes (stone) the landscape of environment can be changed to the unrecognizability. Thus substantial influence on an environment gives edition on a surface exactly of stones which arise up at realization of the mountain making, which is expressed in employment of earths under dumps, violations of natural landscape of earthly surface, contamination of atmosphere by hard and gaseous admixtures, and reservoirs - by slime waters. At enough considerable volumes of dumps their material dries out, and under act of oxygen and anaerobic bacteria oxidizes with the selection of heat. If a heat does not disperse, there is an involuntary self-ignition of coal mass. Mostly such processes are observed in the dumps of cone-shaped form at achievement by them heights in a 40-50 m.

In parallel with an ecological danger which is carried in itself by wastes of mining plants, it is necessary to estimate possibility of processing and use of pedigree dumps in a national economy, in particular for the necessities of metallurgy. Pedigree mass of dumps of mines can contain from 10 to 46 % coal, to 15 % alumina and to the 20 % oxides of silicon and iron. At data of SI «Ukrgeology» [1], except for raw material which contains an aluminium content of rare-earth elements arrives at in 1.0 t of stones: to the germanium - 55 gs, to scandium - 20 gs, to gallium - 100 gs. Common quantity of rare-earth elements in dumps can fold 230-260 gs/t. Technology of derivation of the coloured and noble metals from mine dumps exist. Ukraine, for example, has in the order technology of making from the pedigree dumps of aluminium alloys. In mine waste banks content of aluminium arrives at 18-25 %. In addition, it follows to take into account that pedigree dumps contain the far of iron ore. Obviously, that processing of waste banks will not only improve an ecological situation on the whole but also will allow to get both a coal concentrate and necessary in a production elements.

For the comprehensive study of pedigree dumps it is recommended to carry out the next complex of works, in particular; collection of material about history of forming to the dump; previous test of pedigree dumps on the set chart. Confirmation of data about the presence of that or other useful component, coming from the results of analytical researches, estimation of respectively of the reconnaissance making and volume of gross tests. The results of monitoring of hard wastes of mines must be executed as bases given with the detailed technological characteristics of every pedigree to the dump, with geological description of its stones, by the estimation of contents of useful components and conformities to law of their distribution on the area of inspection in accordance with data of temperature survey.

It is known that in the dumps of coal mines there are many supplies of a number of different valuable matters and their components, comparable on a volume with the corresponding natural deposits of minerals, a making of which for Ukraine will be economic advantageous, especially as presently majority from these mineral resources actually already outspent or difficult of access by virtue of different reasons. Therefore in the near future all strategic supplies of Ukraine of noble and coloured metals, and also iron must be revised and corrected. Coming from stste, exactly now topically to examine wastes of mountain production, as an alternative variant of addition to the natural resources [2]. Therefore wastes of mountain production have considerable economic meaningfulness and can be used in quality raw material for the production of different products.

A mine stone can be used as raw material for metallurgy (presence of iron and aluminium), especially taking into account that in dumps in acceptable to the use concentrations is gallium, germanium, bismuth (0.002, 0.002, 0.007 % respectively). It should be noted that the theme of processing of pedigree dumps emerges in the articles and advanced studies of scientists of distant and near foreignness already far not first time, although the attempts of decision of this problem were done already and prior [4].

It is known that abroad pedigree wastes are used for building of roads, further derivation of coal and making of build materials with the help of the secondary processing, and also for the reheat of coal, that contained at waste banks in the specially constructed heating of thermal power-stations. But the problem of the complete processing of pedigree dumps in metallurgical and coal industries for today so remains practically undecided in the whole world.

It is known that in England; changing a few the forms of waste banks and covering them a forestations, try to «enter»" them in corresponding landscape, and in Germany part of pedigree dumps use for coaling of underground spaces which are freed.

Obviously, that coming from the technical and financial reasoning’s, production on processing of pedigree dumps it is expedient to open out derivationally on the base of mines, which are closed (what get under restructuring) or washeries the dumps of which have all necessary raw material components. Without regard to the higher mentioned technologies, new methods which in a prospect will allow to carry out the complete processing of pedigree dumps on

completely other are developed, new science intensive and, as a result, to more effective basis.

Conclusions. It is set that the methods of processing of pedigree dumps are considered before have a row of such defects, as, a high cost, processing, is not in full, protracted term of planning and building of this object, only partial release of areas busy by waste banks. It is thus necessary to mark that at known before technologies, very valuable part of raw material materials (stones) remains unclaimed because of absence for today corresponding cheap and progressive technologies of selection from its directly aluminium and iron ore in sufficient quantity for further practical realization. The characteristic features of the offered new technologies is possibility of realization of the complete processing of pre-product «under basis» with further recultivation of earths.

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