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MODERN STATE OF TECHNOLOGY OF COPPER EXTRACTION

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Abstract. Uzbekistan is among the countries with advanced iron and steel industry. Formation of the given branch of the industry was promoted by rich mineral resources, the modern enterprises for their processing and highly skilled technical shots.

Keywords: deposit, ores, metallurgy, gold, silver, copper.

СОВРЕМЕННОЕ СОСТОЯНИЕ ТЕХНОЛОГИИ ПОЛУЧЕНИЯ МЕДИ

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Аннотация: Узбекистан относится к числу стран с высокоразвитой металлургической промышленностью. Становлению данной отрасли индустрии способствовали богатые минеральные ресурсы, современные предприятия по их переработке и высококвалифицированные инженерно-технические кадры.

Ключевые слова: месторождение, руды, металлургия, золото, серебро, медь.

Introduction. The rupture of economic relations caused by disintegration of the former union, world financial and economic crisis, certainly, has put the big problems before metallurgical branch of republic. Disintegration of the union has caused of localisation of manufacture and metal release being based on local raw materials. World crisis has caused reduction in demand for our production and, connected with it, decrease in its cost in the world market. But, despite these difficulties, the basic metallurgical enterprises of republic work in a normal mode and, practically, are at level of a pre-crisis condition. What basic directions of development of metallurgy of Uzbekistan during the postcrisis period. We will result the analysis on several metals which make a basis of metallurgy of republic.

Copper manufacture. Copper is one of suppliers of currency in republic. Now copper is issued only in AMMC in quantity about 100 thousand tons in a year. Melting units though capacity electrical twice is more than branch are calculated on this capacity. During the postcrisis period metal manufacture can be a little increased. Building and commissioning of new process of fusion in a liquid bath will allow to improve technologi-

cal process [1, p 1].

In republic territory some hundreds deposits of copper are known. By this time in Uzbekistan it is revealed more than 20 deposits and perspective ore managing of copper, it is reconnoitered four deposits (Kalmakir, Sarycheku, Distant, Kyzata). The copper deposit of Kalmakir and Sarycheku is developed AMMC, Distant and Kyzata is reserve. Other deposits are not involved in industrial processing.

As a raw-material base it is possible to use and nonconventional resources:

- 1) sailings of mining manufacture;
- 2) sailings of tails of enrichment;
- 3) a waste of metallurgical manufacture.

Quantity of this waste are estimated hundreds millions tons and can be an additional source of reception of copper, gold, silver, selenium, tellurium, renium, indium and other metals.

Development of metallurgy of copper last years is characterised by increase of integrated approach of use of the raw materials, increasing scales of application of oxygen in pyrometallurgical and hydrometallurgical processes, creations mechanized and the automated process productions.

The copper industry of the developed countries still develops on the basis of the raw materials arriving from the third poorly developed countries. The USA, Japan, Germany, France, annually import of hundred thousand tons of concentrates from Chile, Zambia, Zaire, etc.

Capacities in developed and developing countries are loaded on the average on 93 % (into the USA on 85-88 %, in Canada, Chile, Peru, Zaire, Zambia - on 97 %).

The basic quantity of copper abroad and in the CIS, including Uzbekistan, receive on standard of pyrometallurgy to the scheme: fusion - converting - refinement; on a share hydrometallurgical a way 12-16 % are necessary.

Last years in a number of the countries abroad and the CIS has increased attention to hydrometallurgical ways of extraction of copper from lost and out-balancing raw materials (compact, underground leaching), the rich oxidised ores (compact and intensive leaching). The mixed ores overwork under the scheme of leaching - cementation - flotation with the subsequent pyrometallurgical processing received concentrates. Researches of hydrometallurgical processing sulphidic copper-bearing materials with use autoclaves a way, salt leaching, sulfatization are spent, however the majority of methods were not beyond semi industrial and industrial tests. A way of autoclave successfully use for reception of a copper powder from ammoniac solutions from leaching secondary materials.

Sulphidic copper-nickel ores subject with flotation to enrichment with reception qualitative with the same name of concentrates [2, p 46].

Development copper manufacture last years is characterised by modernisation and expansion of the existing enterprises on the basis of new technique. The tendency to the organisation of large associations and industrial complexes including a full cycle of manufacture - from extraction of ore before reception of ready metal and its further processing was outlined.

Considerable successes are reached on increase complex uses of raw materials at the expense of expansion of assortment of let out production, the organisation powder-catching, fuller use sulfur-bearing gases, and also using of secondary power resources. The received achievements in many respects are connected with wide usage of oxygen in autogenous processes of the copper industry. So, last years release of copper with oxygen use has considerably increased.

Distinctive feature copper smelting factories of the CIS countries and Uzbekistan (in comparison with foreign) is use large volume poor (15-34 %) complex concentrates. To 50 % of copper melt from matte received in reverberatory furnace and electric furnaces, 50 % in furnaces of autogenous processes. Mine furnaces apply only at old factories to processing of rich ores and sulphurous ores, and also for secondary raw materials.

In the field of converting of matte and refinements of copper indicators of work of factories of the CIS and Uzbekistan is situated at level of the advanced foreign firms. It is mastered manufacture and continuous moulding of oxygen-free copper, reception copper, etc.

Now by copper manufacture it is taken from raw materials more than 12 components and it is made

production more than 20 names.

Conclusion. At the same time it is necessary to notice that introduction new technological processes and schemes is carried out rather slowly. The reason for it is:

1. Essential backlog of level of hardware registration of schemes from level of technological workings out;

2. Adverse economics these extremely necessary processes because of still high costs of the equipment, new solvents, sorbents, extracts absence of industrial production of these reagents;

3. The question of processing of semiproducts of autogenous processes is not solved. For example slags of autogenous processes of the copper industry contain 0,8-1,2 % of copper, at the specification waste slags of 0,35 %. It is necessary to notice that almost all slags of autogenous swimming trunks are stored, expecting working out of economically comprehensible technology of their processing. The work in progress grows, circulating assets are frozen increasing production cost price.

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