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«НАУКА И ПРОСВЕЩЕНИЕ»



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СОДЕРЖАНИЕ

ТЕХНИЧЕСКИЕ НАУКИ	11
THE ANALYSIS OF PHYSICOCHEMICAL PROPERTIES OF METALLURGICAL MOLTEN SLAGS YUSUPKHODJAYEV ANVAR ABDULLAEVICH, KHOJIEV SHOKHRUKH TOSHPULATOVICH, MAMIRKULOV JAVOKHIR SOBITJONOVICH.....	12
THE ANALYSIS OF THE ARCH OF SERVICE OF AUTOGENOUS SMELTING FURNACES DURING PROCESSING OF COPPER SULFIDE CONCENTRATES YUSUPKHODJAYEV ANVAR ABDULLAEVICH, KHOJIEV SHOKHRUKH TOSHPULATOVICH, KIMSANBOEVA GULBAKHOR ABDUBOQIJON QIZI.....	16
USAGE OF REDUCING-SULFIDIZING AGENTS IN COPPER-BEARING SLAGS DEPLETION YUSUPKHODJAYEV ANVAR ABDULLAEVICH, KHOJIEV SHOKHRUKH TOSHPULATOVICH, MIRZAJANOVA SAODAT BAKITJANOVNA, REASONS OF COPPER LOSS WITH SLAG, YUSUPKHODJAYEV ANVAR ABDULLAEVICH, KHOJIEV SHOKHRUKH TOSHPULATOVICH, USAROV JAVLON	22
УПРАВЛЕНИЯ ПРОЕКТАМИ ОБУСТРОЙСТВА НА ПРИМЕРЕ КУСТА СКВАЖИНЫ №221 ВЫНГАПУРСКОГО МЕСТОРОЖДЕНИЯ ЧЕРАГИНА ДАРЬЯ ИГОРЕВНА.....	24
ФИЗИЧЕСКИЙ ИЗНОС, ТЕКУЩИЙ И КАПИТАЛЬНЫЙ РЕМОНТЫ ЖИЛЫХ ЗДАНИЙ ШМЕЛЕВ Г.Д., БЕЗСУДНОВА Т.А., АЛАШНИКОВ Н.А.	28
КОМБИНИРОВАННОЕ ЭНЕРГОСНАБЖЕНИЕ ДЕРЕВООБРАБАТЫВАЮЩИХ ПРЕДПРИЯТИЙ ТРОФИМОВ ВАДИМ ДМИТРИЕВИЧ	32
РАСЧЕТ И ПРОЕКТИРОВАНИЕ ВЫСОТНЫХ ЗДАНИЙ В ММДЦ «МОСКВА-СИТИ» СЕМБАЕВ БАХТИЯР НУРЛАНОВИЧ, ГРУШЕВСКИЙ КОНСТАНТИН ЕВГЕНЬЕВИЧ	35
ПРОЕКТИРОВАНИЕ СНЕГОВОЙ НАГРУЗКИ ПРИ НЕВЫГОДНЫХ ПОЛОЖЕНИЯХ СНЕГОВЫХ МАСС СЕМБАЕВ БАХТИЯР НУРЛАНОВИЧ, ГРУШЕВСКИЙ КОНСТАНТИН ЕВГЕНЬЕВИЧ	38
СПОСОБЫ УСИЛЕНИЯ ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЙ СЕМБАЕВ БАХТИЯР НУРЛАНОВИЧ, ГРУШЕВСКИЙ КОНСТАНТИН ЕВГЕНЬЕВИЧ	42
МЕТОДЫ РАСЧЕТА ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЙ НА ДИНАМИЧЕСКИЕ НАГРУЗКИ СЕМБАЕВ БАХТИЯР НУРЛАНОВИЧ, ГРУШЕВСКИЙ КОНСТАНТИН ЕВГЕНЬЕВИЧ	45
ИННОВАЦИОННЫЕ МЕТОДЫ УТИЛИЗАЦИИ СТРОИТЕЛЬНЫХ ОТХОДОВ СЕМБАЕВ БАХТИЯР НУРЛАНОВИЧ, ГРУШЕВСКИЙ КОНСТАНТИН ЕВГЕНЬЕВИЧ	48
ЭЛЕКТРИЧЕСКИЙ НАГРЕВ В ПРОЦЕССЕ ЗИМНЕГО БЕТОНИРОВАНИЯ СЕМБАЕВ БАХТИЯР НУРЛАНОВИЧ, ГРУШЕВСКИЙ КОНСТАНТИН ЕВГЕНЬЕВИЧ	51

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REASONS OF COPPER LOSS WITH SLAG

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Abstract. The main problems of increasing complex-using from raw materials during processing of copper sulfide concentrates have been shown in this article. In implementing this process on an industrial scale, it is recommended for decreasing amount of copper in waste materials with method of working with different reducing agents. As these components it has been installed what addition different secondary technogenic products of local industrial enterprises which consist of copper and other valuable components for changing physical and chemical properties of slags and lower general losing of copper.

Keywords: copper loss, pyrometallurgy, smelting, molten copper slag, depleting.

ПРИЧИНЫ ПОТЕРИ МЕДИ СО ШЛАКАМИ

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Аннотация: В статье рассмотрены проблемы комплексного использования из сырьевых материалов в металлургии. Даны полезные информации о теоретических основах процессов, которые происходят при плавлении сырьевых материалов. Также, определены основные технологические параметры получения расплава, образующейся при процессе плавления медных концентратов.

Ключевые слова: потеря меди, пирометаллургия, плавление, жидкий медный шлак, обеднение

Introduction. As already it was marked above, one of the basic components of economy of Uzbekistan is nonferrous metallurgy. Formation and development of the given industry were promoted by rich mineral stocks and presence of energy sources. Technologically it meant reception of one component of the raw materials, at the best two, and other valuable metals a concentrate or half-finished product kind went on others the branch enterprise. As a result in many mining-metallurgical enterprises the quantity of a waste which it is necessary to consider as technogenic raw materials has accumulated hugely [1, p 255].

So, now, in tailings of Almalyk Mining and Metallurgical Complex (AMMC, Uzbekistan) it is saved up over 800 million tons tailings of concentrating factories with the maintenance of copper 0.07 - 0.12 %. In them is over 800 thousand tons Copper, 10 thousand tons Molybdenum, 182 tons Rhenium, 500 thousand tons Zinc and many other valuable components.

Materials and Methods. In a waste of pyrometallurgical copper manufactures it is saved already up over 12 million tons waste slags of reflective repartition and an oxygen-torch fusion. Even at the average maintenance of copper in them about 0.6 %, it is possible to count up that in it is national economic circulation

it is not involved over 70 thousand tons copper. Daily such slags it is in addition formed from above 1000 tons.

In special storehouses are saved up ten thousand tons firm converting slags in which the copper maintenance makes 2,5 - 3,5 %. In these slags not demanded there are thousand tons of valuable metal. Especially it is necessary to notice that annually such slags it is in addition formed about 24 thousand tons.

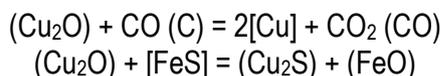
Waelz clinker of zinc manufacture contains over 2.2 % of copper, 2.4 % of zinc, 0.01 % of cadmium, 5-8 g/t gold, 250-500 g/t silver and many other valuable components. About 300 thousand tons such as clinker it is saved already up in sailings, and, at a factory total load, in a year it is formed in addition about 70 thousand tons such valuable material.

Involving of these materials in manufacture will allow industrial complex to receive in addition thousand tons of copper, a significant amount of precious metals and other valuable production.

Results and Discussion. Losses of copper with slags are influenced by many reasons. It, first of all sedimentation on a bath surface concentrate a dust, increase of viscosity of slags, the high maintenance of magnetite in bullion and oxygen in gas atmosphere of the furnace, dissolution of metal, etc.

It is known that all possible kinds of losses of copper with slags can be classified conditionally on chemical, physical and mechanical [2, p 7].

Chemical losses of nonferrous metals are obliged by the origin of convertibility of reactions of restoration or sulfidizing of oxides of copper:



The size of losses of copper in the dissolved form (Cu_2S) in this case is defined thermodynamic process. In industrial conditions of reaction can not reach an equilibrium condition that will lead to increase of chemical losses of copper with slag.

Physical losses is bonded with dissolution in slag of sulphides or metals also are defined by laws of distribution of substance between two not mixing up phases. The first and second kind of losses differs from each other only the mechanism of transition of metals through interphase border and consequently they can be united in uniform group under the name electrochemical losses which metals being in slag in the form of ions concern.

Mechanical losses take place at incomplete division of phases and arise owing to complication in slag of the smallest drops liquid matte or metal. Mechanical losses are presented by drops of matte or metal various size which had not time to be allocated from a slag phase in molten matte during stay bullion in the furnace. The sizes of such drops fluctuate within 0,5 microns to 0,2 mm. The great bulk has the sizes 10 - 100 microns [3, p 112].

Electrochemical and mechanical losses are caused by the nature pyrometallurgical way of reception of copper and to avoid them in actual practice operating enterprise it is absolutely impossible. Necessity of searches of other methods and ways for decrease in negative influence of these factors on technic - economic parameters of process from here follows.

Bibliography

1. A.K. Biswas, W.G. Davenport. Extractive Metallurgy of Copper. Pergamon, 2014, P. 489.
2. A.A. Yusupkhodjayev, Sh.T. Khojiyev. Methods of decreasing of Copper loss with slag in Smelting Processes// International Academy Journal Web of Scholar.//Kiev, RS Global Media LLC. Vol. 2(11), March 2017. pp. 5-8.
3. A.A. Yusupkhodjayev, S.B. Mirzajonova. Theory of Pyrometallurgical processes (in uzb). – Tashkent: TashSTU, 2016. P. 140.

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