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ON RELATION TO EXPEDIENCY AND EFFICIENCY OF APPLICATION BIOGAS TECHNOLOGIES IN THE TERMS OF METALLURGICAL PLANTS

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There are presented results over of scientific researches for possibility of biogas technologies use in the terms of metallurgical plants. There are offered chart and method of step treatment and adjusting for quality of biogas with the use of technologies of cleaning and enrichment.

Keywords: biogas technologies, metallurgical equipment, enrichment, cleaning, hydrogen sulphide

In modern terms natural gas, as one of main types of fuel for Ukrainian industry, becomes more deficient and balances on boundary of financial utility of its use. Therefore the question of replacement of traditional power resources on alternative assumes actuality. Biogas mixture which is widespread enough as a fuel for plants options to them there is belonged, but, because of row of factors, more it remains unclaimed on metallurgical plants.

The mentioned mixture can be a potential power resource for direct burning in industrial technological processes. As a rule, a its prime cost is in times less than cost of natural gas, and the wide and accessible spectrum of corresponding raw material does possible the permanent and continuous providing of power necessities of heat and thermal furnaces of metallurgical and machine-building industry. Them technological requirements to content of ballast and harmful admixtures in composition biogas mixture, is relatively subzero, here the terms of thermal treatment and observance of ecological norms are kept.

However a presence in it of undesirable components does impossible direct incineration of the mentioned power resource without previous treatment, and modernization of aggregates for a low-caloric fuel needs re-equipment of burners, that can be economic unprofitable, and operating charges on the previous cleaning and enriching of fuel to the acceptable level, in some cases can arrive at the size of capital investments in modernization of equipment.

The analysis of researches showed that the simple and relatively cheap methods which are attractive for introduction in metallurgy are existents. So, cleaning of gaseous fuel from to the uretted hydrogen sulfide application of solutions of salts of metals, in particular to the sulfate of iron, which is wastes of metallurgical production, can appear no less effective than accepted analogues. Enriching of fuel mixtures by the method of aquatic absorption of carbon dioxide with the side moving away ofo the hydrogen sulfide, is the real way of refinement of biogas mixture for its further burning in the furnace aggregates.

There is offered chart of multi-stage treatment of biogas mixture on parallel principle which opens possibility of receipt of necessary quality of fuel. At that rate

charges in the system sharply diminish at possibilities of adjusting of chemical composition of biogas mixture in wide limits depending on concrete terms.

Advantage of the offered chart of treatment of biogas in the terms of metallurgical plants is that it allows to choose necessary descriptions of equipment for the wide range of quality of initial power resource, when the use of biogas technologies will become expedient and effective.

The rational choice of eventual quality of biogas mixture depends on the row of factors, in particular the productivity, type and description of the furnace setting; necessary heat power; charges of resources on treatment of mixture to the set quality, and also technological requirements.

Thus, in Ukraine as never time actually to develop the biogas technologies and organize their use in industry. This direction is potential for creation of the new program of resource- and energy-savings, without which further development of the state in modern economic terms is not possible.

In Ukraine, at existent high tariffs on natural gas, the uses of biogas mixture, which are relatively subzero on prime cost, in quality an alternative are never actual, especially for the thermal and heat furnaces of metallurgical industry. Existence of all terms of advantageous at that rate application of biogas technologies is confirmed.

The presented results over will become basis for further researches of possibility of application of biogas mixture in the terms of metallurgical plants of the Zaporozhe region and stage of creation of corresponding instrumentality of increase of efficiency of such technologies.