

PROBLEMS OF OPERATION OF GAS PURIFICATION PLANTS CONTAINING ORGANIC COMPOUNDS

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The article analyzes the current state and perspectives of the modernization of existing plants for the purification of the technological gases from organic impurities. It has been shown that the main technical solution for organizing such purification since the 90s is the installation of thermocatalytic equipment. According to the design documentation, the efficiency of purification from organic compounds has to be about 90 %. Such plants are still in operation, but they are ineffective because of a number of reasons.

With the involvement of qualified specialists from the Research Institute of the SE "UkrNTTS "Energostal", an assessment was made of the current state of the operating gas purification plants, in particular, the thermocatalytic gas purification units (GPU) from organic impurities at a number of coke-chemical plants. The survey was accompanied by technical consultations in order to bring the operation of the existing units to the design parameters.

Assessment of the current state of the facilities showed that they do not operate in design regimes and that bringing them to design indicators will require significant capital expenditures. A detailed analysis of this problems shows that under the current conditions it is practically impossible to ensure the trouble-free operation of such a plants.

Recommendations have been formulated for the alternative processes for sanitary cleaning of gases from organic compounds by gases gathering in global collector and involvement in industry recycling, based on examples of foreign and domestic analogues (including implemented on PJSC "ArcelorMittal Kryvyi Rih"). The issues have been touched upon the application of the domestic experience of implementation of more advanced thermocatalytic gas purification units. As an example of the operation of such a plant, a gas purification system with a capacity of 1300 m³/h from a pitch granulation plant implemented at PJSC "ZAPOROZHKOCS" has been given.

Keywords: process gases, organic impurities, thermocatalytic purification, collector gas collection, recycling.

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