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Modeling and analysis technologies lng best choice for technology arctic climate

Keywords: liquefied natural gas, source of energy, LNG technology, DMR and C₃MR technology, modeling, Aspen HYSYS, arctic climate.

Abstract. The article presents results of modeling LNG technology DMR and C₃MR, their analysis and comparison of a number of criteria, consider the influence of the cold arctic climate on the effectiveness of these technologies, also we calculate the basic technical parameters of energy resources and supplies material for LNG plant. It was chosen the optimal technology for arctic climate conditions.

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**PETROLEUM PRODUCTS:
TECHNOLOGY, INNOVATION, MARKET**

Lukanov D.A., Kuzora I.E., Dubrovskiy D.A., Semenov I.A., Raskulov R.M.

Vacuum rectification of fuel oil.

Dependence of vacuum column performance on pressure and steam rate

Abstract. The results of steady state modeling of vacuum column for fuel oil rectification were given in the paper. The calculations let find a range of normal column work under different products rates. The analysis of dependence between rectification performance and steam rate, supplied to the column bottom for stripping, was studied. The optimal regime with the lowest expenditure for steam was found. vacuum rectification, fuel oil refinery.

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Activated carbon from local raw materials for the regeneration of alkanolamines in the process amine treatment of natural gas instead of sorbent AG-3

Keywords: activated carbon, apricot pits, peach pits, carbon AG-3, activate, carbonizate, alkanolamine, regeneration, import substitution.

Abstract. The production of activated carbon (AC) has been steadily increasing and their application is continuously expanding. The traditional raw material for the production of AU are wood, peat, peat coke, some coals and polyoxy based on them. In Uzbekistan, despite the large demand for AU, they do not produce. In addition, food enterprises of the Republic annually produce large amount of waste of processing of fruits of apricots and peaches, is widely cultivated on the territory of the Republic. According to the literature data named waste can serve as a good raw material for the production of AU.

In the world practice for cleaning saturated solutions of alkanolamines on the units amine treatment of natural gas from acid components is widely used activated charcoal brand AG-3. Activated charcoal brand AG-3 is obtained in the form of granules from coal dust and binder method of treatment with water vapor at a temperature of 850-950°C.

Uzbekistan has three major gas processing complex Mubarek gas processing factory (mgpz), the washing installation of the enterprise "shurtanneftgaz" and Shurtan gas and chemical complex. The units amine treatment of natural gas from acidic components higher the number of plants for the purification of saturated alkanolamines used activated charcoal AG-3.

We must remember that activated charcoal AG-3 is of foreign origin and imported for currency.

In the present work, the aim was – obtaining activated carbon from local raw materials for the regeneration of alkanolamines in the process amine treatment of natural gas instead of sorbent AG-3.

As the object of study were the seeds of apricots and peach.

In the course of the research were studied the carbonization of the raw material in the temperature range 600-900°C in a quartz reactor placed in an electric furnace with controlled heating. The activation process of carbonisation studied in the same reactor. The reactor was fed water vapor from the generator for 1-5 hours.

The quality of the desired products was monitored by measuring their adsorption activity for methylene blue (MG), iodine, benzene, water vapor, at the same time estimated their total porosity by boiling in water.

Analysis of apricot and peach kernels is established that the mass fraction in them the shell is 85-90, its moisture content is in the range of 20-21, and ash content – 0,27-0,3%. The obtained experimental results are shown in

tables 1 and 2, allowed us to note that the optimal conditions of carbonization of the bones to peaches are a duration of 1 h at 750°C; apricots for 2 h at 600°C.

Based on the obtained data, it was stated that the optimal conditions for the activation of carbonized stone raw material temperature of 850°C, duration 2 h.

Comparison with literature data revealed that the obtained target products for adsorption activity are at the level of the activated carbon from stone raw materials, which is one of the highest quality global industrial activated coals, and far superior to many other carbon adsorbents. Thus, the studies demonstrate the feasibility of processing described waste of the Republic of Uzbekistan on carbon adsorbents.

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EQUIPMENT and DEVICES

Ishkaeva R.R., Marushkin A.B., Bachurin A.N., Sukharev K.V.

Suppression of hydrogen-sulfide corrosion at process «Bashneft-Dobycha»

Keywords: sulfate-reducing bacterium, hydrogen sulfide, hydrogen-sulfide corrosion, bactericide, crude oil.

Abstract. There are results in this article of using bactericide by the name Darsan-B for inhibition the growing of quantity of sulfate-reducing bacterium, at the process of their vital activity, when hydrogen sulfide is produced by them. Periodical injection of reagent in unprepared water, pumped in pressured well for supporting seam pressure, permits completely suppress vital activity of sulfate-reducing bacterium.

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ANALYTIC METHODS FOR OIL and PETROLEUM PRODUCTS

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Concept of quality assurance of analysis results of petroleum products

Keywords: petroleum products, analysis, laboratory, quality of analysis results, accuracy, reliability, quality parameters of analysis results, quality assurance of analysis results, statistical analysis process control, statistically controlled condition, interlaboratory comparison tests, internal quality control of analysis results, preventive actions, corrective actions.

Abstract. The article reveals the concept of "quality of analysis results" as a combination of two properties of accuracy and reliability, and it is shown that it is impossible to assess the quality of a separate analysis result of a petroleum product sample, it can be only estimated the quality of the analysis process in the laboratory as a whole.

Each process, including the process of petroleum products analysis has some variability (variation). In case of normal, steady process such variation is natural, it is within certain limits and can be controlled. In case of deviation from the normal, steady state processes show uncontrolled changes that are not typical and not constant for this process. The reasons for this include certain factors not specific to the analysis process. These "special" factors lead to the appearance of the real, uncontrolled changes in the analysis of petroleum products. Such process needs to be adjusted in order to eliminate the influence of "special" reasons and to return the test process to the statistically operated (statistically controlled) condition.

For the statistical quality control of the analysis results in the laboratory the system of quality assurance of analysis results should include:

- Formation of the necessary conditions for a stable and steady petroleum products analysis;
- Intralaboratory experiment that confirms the ability of the laboratory to carry out tests with an accuracy of not less than the guaranteed accuracy of the analysis methods, as well as determines the actual values of the quality parameters of analysis results that will be monitoring standards for future internal control procedures;
- Prevention of delivery to customers of unsatisfactory results of the analysis during the operating control of the analysis procedure;

Assessment of the analysis process condition in the laboratory and identification of exit points of the analysis process from the statistically controlled condition during the control of stability of the analysis results;

- Corrective actions for elimination of the identified discrepancies and return of the analysis process to the statistically controlled condition;
- Checking the effectiveness of the internal quality control of the analysis results during the external control (interlaboratory comparison tests);

- Measures to develop and improve of the analysis process.

The basis of the control system of quality assurance of the test results make stability control procedures of the analysis results using control charts (Shewhart or cumulative sum), which allow to monitor effectively the change dynamics of quality parameters of the analysis results and to manage quickly the analysis quality on the basis of the rules of consideration of the emerging situations specified for work with the control cards. The characteristic of the analysis process are the control limits - alert limit and action limit, defining the scope of a statistically controlled condition of testing process.

The quality assurance system of the analysis results in a test laboratory must operate constantly and continuously. It is a mistake to believe that if once during the internal control has been adjusted analysis process, and this was confirmed by the results of the external monitoring, further analysis process will be in the stable, statistically controlled condition. The combined effects of various factors such as the complexity of test procedures, stability of reproduction of the specified analysis conditions, human participation in analysis process, etc., leads to the fact, that the oil analysis process is potentially unstable, and constant efforts must be taken to control it course and to hold a stable, statistically operated condition. Availability of the current effective quality assurance system of the analysis results is the main feature of a competent laboratory and one of the criteria for the accreditation.

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CONFERENCES. SEMINARS. EXHIBITIONS

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