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On the issue of conducting the conversion of fractional compositions of petroleum products and oils in order to predict the yields in volumetric and mass percentage

Keywords: Model of compositions conversion, volumetric and mass percentages, cubic splines, experimental and calculated data, TBP, GOST 2177, the adequacy of the model.

Abstract. Algorithm is developed and the program is implemented in MS Excel environment, which solved the problems of petroleum products and oil and gas condensate feedstock compositions conversion as per TBP into the compositions according to GOST 2177 and vice versa. It allows using minimum initial information on fractions outputs with known boiling point obtained experimentally in the laboratory for converting. If one knows a few points with fractions end points, it is possible to extend them using the proposed method. Comparison of experimental and calculated data for the conversion of motor fuels was carried out (as per TBP compositions into the compositions according to GOST 2177) and oil and gas condensate feedstock (vice versa). The proposed model was adequate to experimental data with a mean relative error of less than 1%. It can be used to obtain the calculated distillations (in volume or mass percent) for fractions with different boiling range.

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Propane-butane tar deasphalting process of highly paraffinic crude in order to obtain feed stock for road bitumen production

Keywords: deasphalting, tar, propane-butane mixtures, experiments, pilot unit.

Abstract. The results of experiments on research of the process of propane-butane deasphalting of highly paraffinic crude are presented**. P**ilot samples of deasphaltisates and asphalts at various deasphalting modes are obtained. The characteristics and product yields of the process are given.

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Vezirov R.R, Obuhova S.A., Vezirov N.R.

Process for producing electrode and anode coke MAKSIKOKS and the concept of a «coke plant» based on it

Keywords: electrode and anode coke, heat treatment, raw materials, thermal polycondensation, delayed coking, calcining, «coke plant».

Abstract. The paper presents the developed process for producing an electrode and anode coke MAKSIKOS of various petroleum feed stocks. MAKSIKOKS process includes blocks of preliminary heat processing of raw materials, coking and thermal polycondensation of heavy gas oils. The process provides a high-quality electrode and anode coke.

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State and development prospects of petroleum coke calcining processes at the enterprises of Russian Federation

Keywords: calcination; technology; equipment; calcining furnace; drum furnace, hearth, chamber, retort; incinerator; refrigerators for calcined coke; output of calcined coke; calcining plants efficiency; loss of coke; volatiles; coke dust; ecological problems; ferrous and non-ferrous metallurgy; petroleum refining; foreign companies.

Abstract. This article provides information on the development of technology, equipment for petroleum coke calcination plants at the refineries, ferrous and non-ferrous metallurgy plants in 1970-2015 years. The analysis of the development of petroleum coke calcination process in the USSR - the Russian Federation is given. The data on the effectiveness of the implementation of the calcination processes in rotary and hearth furnaces according to the technology of foreign companies «ENSA», «KennedyVanSaun» and «Mannesmann». The analysis of the shortcomings of the technology and equipment of domestic and foreign calcination plants is given. Directions of calcination processes development in the future are put forward.

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Influence of solid additives during sulfurous tar coking on the quality of products obtained

Keywords: petroleum coke, tar, coking, solid additives, sulfur content in coke, coking distillates.

Abstract. By means of the delayed coking pilot plant GUP INKhP RB conducted studies on tar coking using solid additives: coke breeze, slate powder and lignite. The experiments have shown that a significant reduction in the sulfur content of the coke is observed during tar coking with slate powder, and no significant changes in the quality characteristics of the distillate fractions have been identified.

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Process of joint processing of ammonia and hydrogen sulfide containing gases with high sulfur recovery rate

Keywords: hydrogen sulfide, ammonia, sulfur production, Claus method, optimization.

Abstract. The growth of environmental requirements to industrial facilities on process emissions makes it actual the task of increasing the degree of sulfur recovery during the sulfur-containing feed processing. However, the existing hydrogen sulfide processing technologies do not work in optimal conditions, without providing the highest possible degrees of sulfur recovery. The presence of ammonia in the process hydrogen sulfide gases creates certain difficulties in the process management. This paper shows the directions of optimizing the individual stages of the existing sulfur production process by Claus method, the result of which was the development of the process with a degree of sulfur recovery of more than 99% with the presence of ammonia in the process gas.

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Improving the process of regeneration of the heterogeneous catalysts using supercritical technologies

Keywords: supercritical fluids, carbon tetrachloride, oligomerization, regeneration, montmorillonite, butane-butylene fraction.

Abstract. Studies of regeneration by supercritical carbon dioxide and with the addition of the chlorinated compound (CCl_4) of superacid catalysts based on mixed heteropoly acids applied onto acid activated montmorillonite were conducted. A comparison of the effectiveness of the catalyst performance in the oligomerization process after five «reaction-regeneration» cycles was conducted.

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From the experience of the development of regional standards for road bitumen and polymer bitumen binders, for asphalt and polymer asphalt concrete

Keywords: road bitumen, road construction, non-oxidized bitumen, modified bitumen, PBB polymer asphalt concrete.

Abstract. New standards for bitumen and polymer bitumen materials, asphalt and polymer asphalt concretes do not consider current operating conditions of road surfaces. Specific examples of the detected inconsistencies between the standards for organic binders and asphalt concrete are shown. The scheme of the regional experiment, which aims to bring order to the road construction in one particular region of Russia is presented. New draft standards for organic binders and a number of suggestions to improve the performance of asphalt concretes are presented. The necessity to develop the asphalt concrete standards, along with standards for binders based on new organic binders is justified. Examples of the first practical tests of new materials are shown.

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Features of dealing with the issues of environmental safety and the provision of sanitary and hygienic requirements during the development of the sanitary protection zones for the group of enterprises

Keywords: sanitary protection zone, refinery, environmental documentation, environmental protection.

Abstract. The environmental legislation in the field of environmental protection and sanitary and epidemiological welfare of population has been analyzed, the results of the developed project of the joint (estimation) sanitary protection zone (SPZ) of the Northern industrial hub of the city of Ufa are shown. The problems arising in the development of the preliminary (estimated) SPZ for large industrial enterprise groups have been considered. A method of simplifying the adjustment and approval procedures of the already developed estimated SPZ for large industrial units (groups of enterprises) has been offered.

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Universal scheme for treatment plants

Keywords: waste water, waste water treatment, sewage treatment, biological treatment, physico-chemical treatment, desalting, ion exchange.

Abstract. A universal technological scheme of wastewater treatment, which consists of individual blocks is presented. The advantage of this scheme is in the possibility of using a different set of blocks depending on the task.

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