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The ways of catalytic cracking process development

Keywords: catalytic cracking, vacuum distillate, hydrodesulfurisation, gasoline jelly.

Abstract. The methods of vacuum distillates catalytic cracking process are considered. The technologies of feedstock preparation are described. Quality figures of feedstock and final products, material balance of the recommended process are given. The perspectives of FCC – process are considered.

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ACCENT of the ISSUE: Production and application of bitumen

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Problems of production and using road bitumen according GOST 33133 and their technological solutions

Keywords: public roads (roads intended for vehicular traffic the general public); production and technological complex, road bitumen, depth of selection of a vacuum distillate.

Abstract. The article discussed some of the problems of production and using of road bitumen grades according to GOST 33133 in Russia. The conclusions and opinions both on the list of essential indicators of their quality, and on the feasibility of adjusting the level of some of the requirements for the quality of bitumen. It explains the features of modern bitumen production and the need for investment by manufacturers of road bitumen. Clarified the basic technological solutions for production in accordance with GOST 33133 marketable products.

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Production of road bitumen compliant with GOST 33133-2014 standard

Keywords: road bitumen, high viscosity vacuum residue, oxidized bitumen, compounding, low temperature properties, catalytic cracking heavy gas oil.

Abstract. In present road asphalt production in Russian Federation there are two contradicting trends. First one is steady increase in demands of road bitumen quality to provide the required durability of road upper layers. It results in the introduction of modern paving grade bitumen standards, such as GOST 33133-2014, that differs from previous in enhanced requirements for most road binder properties. Second trend derives from constant increase of oil refining efficiency in most modern plants and consist in lowering of pressure in vacuum distillation of atmospheric oil residue. Main purpose of this trend is to obtain larger amount of vacuum gas oil that is further used in catalytic cracking process. However that tendency has a side effect of significantly increased viscosity of vacuum residue. Use of high viscosity vacuum residue in oxidized road bitumen production results in poor plasticity and low temperature properties of asphalt. In present study it is shown that one way of improvement of wide array of road bitumen properties, especially low temperature characteristics, such as penetration and ductility at 0°C, is mixing of oxidized heavy vacuum residue with catalytic cracking heavy gas oil. Considered method allows production of high quality bitumen compositions that are compliant with modern GOST 33133-2014 paving grade bitumen standard for BND 70/100 and BND 100/130 grades, which finds the widest application in the asphalt concrete production in the Russian Federation.

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Modernization of Angarsk Petrochemical Company for bitumen production according to GOST 33133-2014

Keywords: tar, road bitumen, industrial test.

Abstract. The results of industrial test of bitumen production in Angarsk petrochemical company according to GOST 33133-2014 are given in the paper. Potential of usage of the asphalt from solvent deasphalting process for bitumen production is considered.

«Angarsk Petrochemical Company»

PETROLEUM PRODUCTS: TECHNOLOGY, INNOVATION, MARKET

Kuzora I.E., Dubrovskiy D.A., Marushenko I.Yu., Artem'eva Zh.N., Zabrodina S.V., Ganina A.A., D'yachkova S.G.

Experience and aspects of the production of unleaded gasoline with the involvement of butyl alcohol at SC «Angarsk petrochemical company»

Keywords: motor gasoline, butyl alcohols, oxygenates, detonation resistance.

Abstract. In this article present results of the study of unleaded gasoline brands AI-92 and AI-95 which were produced with the involvement of butyl alcohols production of SC "Angarsk petrochemical company" (SC «APCC»).

The involvement of butyl alcohols in the motor gasolines brings in a more uniform distribution of the octane number by fractions, which has a positive effect on the stability of the anti-knock properties at the evaporation of the light fuel.

The quality of the obtained experiment-industrial samples completely meets the requirements of the Technology Regulations TR CU 013/2011 and GOST 32513-2013 for environmental class 5.

The monitoring of chemmological characteristics of gasolines in storage and at all stages of movement from the manufacturer showed stability characteristics of the test fuels.

Scale tests of gasolines have given a good estimate of technical condition of cars.

The economic effect of the involvement of butyl alcohols in gasolines environmental class 5 at SC «APCC» is shown in the article.

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Isomerization of hydrocarbons C₅, C₆ ionic liquid triethylamine hydrochloride-aluminum chloride in the presence of metal complexes with 2,3,5-triphenyltetrazolium chloride

Keywords: ionic liquid triethylamine hydrochloride, 2,3,5-triphenyltetrazolium chloride, a complex salt.

Abstract. The paper presents the results of studies on the influence of content of metal complexes with 2,3,5-triphenyltetrazolium chloride in the composition of the ionic liquid triethylamine hydrochloride-aluminum chloride on the catalytic activity in liquid-phase reactions of isomerization of *n*-pentane and *n*-hexane, and mixtures of these hydrocarbons. The isomerization process is carried out in a batch reactor and analysis of the obtained products was performed using gas chromatograph GC-2010 Plus, Shimadzu. The results of studies on isomerization of individual *n*-alkanes with number of carbon atoms C₅-C₆ showed high activity catalyst system composition of the triethylamine hydrochloride – aluminum chloride with the addition of the complex of copper (II) chloride 2,3,5,-triphenyltetrazolium. However, the selectivity for all isocomponent for the mixture of *n*-alkanes lower than for individual representatives.

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CHEMMOTOLOGOS

Lashkhi V.I., Chudinovskikh A.L., Zolotov A.V., Salutenkova V.A.

Interpretation of general condition change of working motor oil

Keywords: condition of working motor oil in the engine.

Abstract. asic theoretical provisions development is very useful for practice. Those provisions allow not only to create a stable theoretical base, yet to improve common approach at various questions solution. Description of general condition of motor oil and its change within time relates to those statements.

ANALYTIC METHODS FOR OIL and PETROLEUM PRODUCTS

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Evaluation of the viscosity-temperature properties of hydraulic fluids by ASTM methods

Keywords: viscosity, stability, hydraulic liquids, additives, tests, ASTM methods.

Abstract. Practically all modern domestic and foreign hydraulic liquids needs to ensure the stability of viscosity in wide range of temperatures, therefore, for correct application of fluids in hydraulic systems so important to assess their viscosity-temperature properties. The most widely range of testes of the dependence of viscosity on temperature and assess the effect on its thickening additives are presented in the methods of ASTM.

JSC «LMG Technology»; 25 Gosnii MD RF

CONFERENCES. SEMINARS. EXHIBITIONS

V International conference “Fuel additives 2016” (07.09.2016, Moscow) / Post-release