

High technology of production of bitumen from highly paraffinic crude

Kemalov R., Kemalov A., Maltseva A., Nige V.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Background: The problem of manufacturing bitumen of high quality from oil residues is quite actual problem, as under conditions of depletion of oil reserves it is needed expansion of raw materials base. Methods: The analysis of oil processing state in the world determines the necessity of complex approach to solve the problem of using heavy oils, oil residues and natural bitumen, combining the further working the known processes and generating new alternative technological processes. The prospects of new effective processes development in oil processing are possible with application of different chemical and physical phenomena (mechano-chemical, plasma-chemical, ultrasonic actions and the others). Results: Currently, in practice in Russia, for refinement of final product of highly paraffinic crudes, which is production of high-octane benzine, diesel fuels, there are used pour-point depressants and inhibitors, compounding with highly paraffinic crudes, processing by secondary processes - reforming, zeoforming, isomerization, viscosity breaking and coking. Practically, all these methods have restrictions on application of processing heavy oil stock. Therefore, the main objective is searching to find alternative methods on the basis of nontraditional technological processes¹. Facilities of bitumen production from goudron with paraffin carbohydrates about 15% of masses are considered^{2,3}. It is rather problematic to obtain quality product from such raw materials. Conclusion: Therefore, the process of oxidation of goudron to bitumen is conducted in the presence of a catalytic complex, the action of which consists in reduction of paraffin carbohydrates and in reduction of process, So its presence is 2 times reducing preparation time of bitumen road marks. Also, results demonstrate that the reduction in the content of paraffinic hydrocarbons occurs by 2 times.

<http://dx.doi.org/10.17485/ijst/2016/v9i18/93733>

Keywords

Bitumen, Catalytic complex, Goudron, Highly paraffin petroleum residue