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Estimation of potential capability of natural bitumens and high viscosity oils for refining according to fuel-bitumen scheme

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Abstract

According to different estimates, geological heavy oil and natural bitumens resources at the Tatarstan deposits make 1,5- 7 billion tons. On the territory of Tatarstan across all bituminous horizons about 450 deposits of natural bitumens have been found. One third of deposits of this raw materials existing in Russia fall on the share of Tatarstan. Natural bitumens are valuable material for production of fine chemicals that are used in different spheres of life activities. Natural bitumen is to a different extent oxidized high-viscosity oils of liquid, semi-liquid and hard texture with high content of sulfur, resins and asphaltenes. In contrast to oil, they are characterized by increased content of vanadium, nickel, molybdenum and significantly smaller content of gasoline and diesel fractions. Nevertheless, despite the works performed, no significant success has been achieved in production and processing of bitumens yet. This is mainly because of absence of the relevant equipment. It is necessary to accelerate development of bituminous deposits, creation of complexes with the use of high performance technologies and technical means for most complete extraction of this raw material from the earth and treatment thereof. Implementation thereof will create pre-requisites for commercial exploitation of natural bitumens deposits not only in Tatarstan but in other regions of the Russian Federation as well. To estimate the potential capability of natural bitumens and high viscosity oils it is necessary to perform detailed analysis aimed at determining the graphical charts of the true temperature curve, density, low-temperature, viscosity properties, fraction and hydrocarbon composition.

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Keywords

Additives, Bitumens, Bituminous materials, Fuels, High viscosity oils, Natural bitumens, Processing, Refining, True temperature distillation curve