**SYNTHESIS OF NANOSTRUCTURED METAL - CONTAINING CATALYSTS AND THEIR USE AT REFINING OF HEAVY OIL RESIDUES**

**V.M. Abbasov, H.J. Ibrahimov, G.S.Mukhtarova, N.Kh.Efendiyeva, R.I.Huseynova**

Azerbaijan NAS Institute of Petrochemical Processes, Azerbaijan, Baku

*[gulermuxtarova@yahoo.com](mailto:gulermuxtarova@yahoo.com)*

The main peculiarity of all existing technologies of hydrogenation refining of heavy oil residues is the application of the catalytic systems with applying of active elements. A structure of such catalysts imposes constraints on quality of processing raw material, in particular on con­tent of the catalytic systems. Aluminosilcate, zeolite, carbon and other active catalytic centers applied on various porous bearers, having form of ball; sphere, tablets, cuttings, etc are on the surface and in the pores of bearers. In the conditions of thermal catalytic destruction process of heavy residues the surface and pores of bearer are covered with high-molecular (asphalt- resionous) components of raw material and consolidation products forming in the process, which is accompanied by blocking of the active catalytic centers and fast deactivation of the catalyst. It has been revealed that the nanosize particles of the catalysts of raw material hydro-conversion and also special technology of their formation in the reaction zone have not these defects. [1-4].

In this paper the basic results of the investigations of tar hydrocracking process of mixture of Baku oils in the presence of the high-disperse nanostructured suspended catalysts under low pressure for the production of the additional quantities of the light oil products and deepening of oil refining have been presented.

For carrying out of tar hydrocracking the process of making of the catalytic systems by a method of impregnation of the natural minerals was carried out as follows:

• Dispersed catalytic systems Ni/Kaolinite, Ni/Fe/Kaolinite have been prepared by impregnation dried at 150°C mineral of kaolinite by aqueous solutions of salts of NiCl2 (5%) and mixture of salts NiCl2, FeCl3 (5%) by their further evaporation at 150°C and thermal treatment for 4 h at 850oC in helim atmosphere on apparatus CVD (Chemical vapor deposition).

• For transfer of natural mordenite (Nakhichevan deposite) to the dispersed state the samples were subjected to the thermal treatment in helium atmosphere 850 oC for 4 h.

The experiments were carried out in a rotating autoclave( of 1 l volume) at 410-460°C temperature and 0.5-2 MPa pressure. The obtained hydrogenation product after filtration from catalytic additive and deposited on it coke-like products as well as metals (Ni, V, Fe and Cu), was distilled with isolation of gasoline (start of boiling- 200°C), diesel (200-360°C) fractions and residue (>360°C). The analysis of the obtained results showed that upon hydrocracking of goudron over the tested catalytic additives the yield of the light products was significant and made 50-57% mass. The gasoline fraction produced at hydrocracking of goudron with the catalytic additive is characterized by a good colour, a low content of unsaturated hydrocarbons and octane number 70-71 points according to the research method.

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