

2nd World Congress on Petrochemistry and Chemical Engineering

October 27-29, 2014 Embassy Suites Las Vegas, USA

Dearomatization of straight-run diesel fuel by using adsorbents under magnetic field

Safarli I A, Abbasov M M, Teyubov H S, Mamedova T A, Mamedzade A M, Abbasov V M
Institute of Petrochemical Processes of Azerbaijan NAS, Azerbaijan

The actual goal of today is development of new technologies and processes for diesel fuel obtaining satisfy modern environmental standards.

On obtaining of diesel fuels special importance attends to content of sulfur and polycyclic aromatic hydrocarbons (PAH). Increasing of sulfur content lead to rising of sulphur oxides escaped to atmosphere and also lead to equipment corrosion. High content of PAH result in increasing of coal-formation and solid particles in emission, what affected on deterioration of diesel ecological quality. In addition aromatic compounds possess high poisonous effect, that's why negatively affected on man health.

At present decreasing of sulfur content and aromatic hydrocarbons realized by hydrofining and hydrocracking under temperature 350-400°C and pressure 7.0-10.0 MPa. These processes realized by using considerable supply of hydrogen and complicated process flowsheets.

At last years intensify the interest to low-energy influences, without marked outside expenditure of energy or with use of inside reserve of matter rebuild its structure. As outside influence to matter structure including oil systems can be used various options of electric, electromagnetic, magnetic, vibrating and acoustic fields.

At this research work there were investigated adsorbtion dearomatization of diesel fractions under the influence of magnetic field. As adsorbent researched zeolite comprising adsorbent of local minefield "Imishli" (I) and cation-exchange resin KU-2-8 (II).

Investigation showed that using of magnetic field intensifies adsorbtion effect of aromatic hydrocarbons. So, if content of aromatic hydrocarbons with using adsorbent (I) decreased to 28% and composed 11.8% mass, using of magnetic field lead to decreasing of aromatic content more to 24% and total content of aromatic hydrocarbons at this consist 7.9% mass. Using of adsorbent (II) under magnetic field decreased content of aromatic hydrocarbons to 51% mass.

	Straight-run diesel fraction	After adsorbtion with using (I)		After adsorbtion with using (II)	
		Without magnetic field	Under magnetic field	Without magnetic field	Under magnetic field
Content of aromatic hydrocarbons, % mass	16.4	11.8	7.9	11.3	8.4

Biography

Iranasafarli has completed her Master degree at the age 22 years from Baku State University and now is a postgraduated student at the Institute of Petrochemical Processes of Azerbaijan National Academy of Sciences (1st year). Also she is scientific associate at the same institute. The main goal of her work based on obtaining of ecological fuel, especially concentrated on diesel fuels and their treatment under the influence of magnetic field.

iranasafarli@gmail.com