



STUDY OF THE PROPERTIES OF THE PRODUCTION OF OXYGEN- PRESERVING ORGANIC (E-2) ETHER OBTAINED ON THE BASIS OF EPICHLOROHYDRIN AND ALCOHOLS

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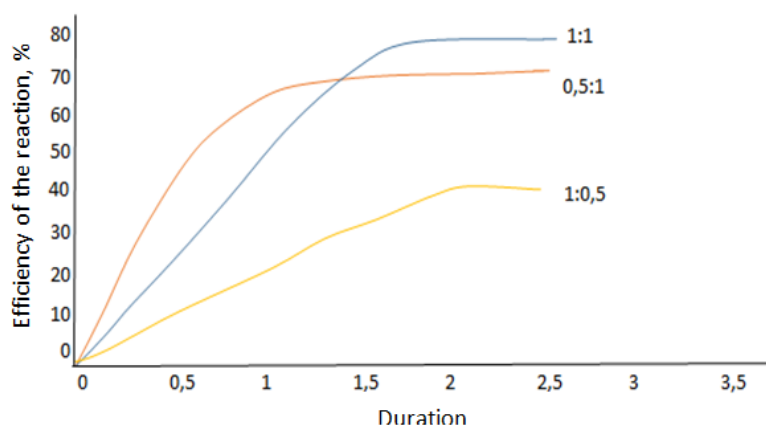
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Abstract: *Automobile gasoline is the main type of automobile fuel, and its production is growing steadily in the world. The volume of production of gasoline with a high octane number abroad and in our country is constantly increasing, and this is one of the important tasks of the fuel industry to improve the technological processes of their production, develop new additives for fuel and conduct new research on their use.*

Keywords: *gasoline, oxygen, fusel oil, additive, gasoline, non-oil raw materials, epichlorohydrin, oxygenates, octane number.*

The main global trend to improve the environmental and operational properties of gasoline is the use of multifunctional additives, mainly oxygenates, oxygen-containing substances (alcohols, ketones, simple and complex ethers, etc.). The presence of oxygen in the fuel makes it possible to reduce the harmful emissions of carbon monoxide by 30%, and unburned hydrocarbons by 15% [1,4].

The method of obtaining oxygen-containing organic (E-2) brand additives based on epichlorohydrin and alcohols was carried out as usual. Initially, reaction processes were carried out at different ratios, temperatures and time intervals to obtain organic esters that increase the octane number based on epichlorohydrin and methanol. To carry out the reaction, a 500 ml three-necked flask, a sieve and a refrigerator were equipped with equipment. During the reaction, 100 g of epichlorohydrin and 78 g of methanol were added and the reaction was stirred at a temperature of 50°C for 2.5 hours, and this process was carried out under two different conditions. That is, the first condition was carried out in an alkaline environment. The second condition included acidic conditions, in both cases esters were obtained as a result of the reaction. The mixture was then cooled to 20-22 °C and filtered and isolated. The reaction yield was 75%. Experiments were carried out by taking the optimal proportions of the reaction process for obtaining octane number-increasing organic ethers based on epichlorohydrin and methanol. Epichlorohydrin and methanol 1). 1:1; 2). 1:0.5 3). 0.5:1 ratio. So, if we analyze the optimal mass ratios in the reaction, it was found that the reaction efficiency is high in the temperature range of 50°C at 1:1 mass ratio. (Figure 1).



. Dependence of the reaction yield of organic esters based on epichlorohydrin and methanol, increasing the octane number, on the ratio of starting materials and time

Optimum conditions, physico-chemical properties of obtained organic esters based on epichlorohydrin and methanol, which increase the octane number, were studied, and the composition of these organic ethers with oxygen content, which increases the octane number, was determined. Table 1 lists the physico-chemical properties of organic ethers that increase the octane number with high performance properties.

Table-1

Physico-chemical properties of organic esters that increase the octane number

Organic esters that increase the octane number	Ratio (mol)	Yield %	Aggregate status	pH	Density, g/cm ³	Solvent
	1:1	75	pale	7,0	1,02	Soluble in organic solvents
	1:0,5	64	yellow			
	0,5:1	34	colored			

From the results of the analysis, it can be seen that the organic ethers obtained by this method are a domestic product that increases the octane number and is economically highly effective.

REFERENCES:

1. Lipin P. V. et al. Joint Cracking of Vacuum Gasoil with Vegetable Oils on Zeolite-Containing Catalysts of Various Compositions // Petroleum Chemistry. – 2022. – T. 62. – №. 8. – C. 886-895.
2. Braginsky O. B. Alternative motor fuels: global trends and choice for Russia // Russian Chemical Journal. – 2008. – T. 52. – No. 6. – pp. 137-146.
3. Karimov N. et al. Research and application of import-substituting products for processing fusel fractions in rectification plants.
4. Babkin K. D. The influence of methyl tert-butyl (MTBE) and methyl tert-amyl (MTAE) ethers on the properties of reformulated gasoline: dissertation for the degree of candidate of technical sciences / Russian State University of Oil and Gas named after. IM Gubkin. Moscow, 2020–117 pp., 2020.