

MODIFIED ALUMINOSILICATE CATALYSTS BASED ON CENOSPHERES OF POWER PLANTS FOR PROCESSING FUEL OIL INTO LIGHT FRACTIONS

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ABSTRACT

In this work the narrow fractions of non-perforated cenospheres from the combustion of Ekibastuz coal at the Almaty TPP-2 with an aluminosilicate module $\text{SiO}_2/\text{Al}_2\text{O}_3 = 3.2$ and an iron content of 3.03-3.67 wt. % in Fe_2O_3 have been researched. It was shown that the composite containing of activated zeolite based on Almaty TPP-2 cenospheres is optimal for obtaining of light gas oil during cracking in both inert medium and trace air quantity. The composite also showed maximum activity during oxidative cracking of vacuum distillate of Zhetybay oil (Kazakhstan). In the presence of the developed catalysts, the symmetric decomposition of the high-molecular-weight hydrocarbons contained in fuel oil was with the formation of alkenes and alkanes of the relative homologous series, starting from heptene-1 and heptane ending with octadecen-1 and octadecane. As a result of the study, an innovative method of oxidative cracking of fuel oil in the presence of cheap catalysts, synthesized on the basis of natural zeolites of Kazakhstan deposits and zeolites obtained from fly ash from thermal power plants has been developed.

KEYWORDS: Cracking, Fuel Oil, Cenospheres, Natural Zeolite & Fly Ash from TPP

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