

ABSTRACT

Used oil waste is included in the category of Hazardous and Toxic Materials (B3) according to the Government Regulation of the Republic of Indonesia Number 101 of 2014. Used oil waste cannot be thrown away and must be treated specifically in accordance with applicable regulations. Therefore, used oil waste must be treated specifically so that it is not dangerous. In this study, used oil waste can be converted into diesel by mixing used oil with sulfuric acid (H_2SO_4) and TEA (Triethylamine). The used oil will be mixed with sulfuric acid in a volume ratio of 33%, 20%, and 14%. Then used oil that has been mixed with sulfuric acid is mixed with TEA with a volume ratio of 2%, 3% and 4%. The parameters that will be used in this research are density, flash point, heating value, and total acid number. The results of the analysis show that only sample 2 has a value in accordance with the standard. For flash point, only sample 9 has a value that conforms to the standard. There are no samples that have a heating value and acid value in accordance with the standard. Only sample 9 measured its calorific value and acid number. The measurement results of the heating value of sample 9 have a value of 74.6% lower than diesel. While the acid number of sample 9 has a value of 84% higher than diesel.

Keywords: sulfuric acid (H_2SO_4), TEA (Triethylamine), heating value, flash point, total acid number, and density.