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**PROJECT WORK REPORT ON
"Conversion of Waste Tires into Liquid Fuel Compounds and Evaluation of Engine
Performance"**

(Approved and Sponsored by KSCST)

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ABSTRACT

Owing to the difficulty in disposal of tires and environmental pollution due to accumulation of waste tires, pyrolysis is carried out as an alternative, efficient and environmental valorization process, rather than combustion incineration which primarily is characterized as a destructive one. Pyrolysis can be considered as a non-conventional method for tire recycling, which seems to be very appropriate for complex materials, such as tires. This technology could not only reasonably and effectively dispose waste tire and tube without pollution, but also is effective in producing fuel that can reduce energy crisis. Thermogravimetry analysis reveals that the pyrolysis of tire rubber at atmospheric pressure starts at a temperature around 100 °C and finishes at a temperature of about 300 °C. In general, by pyrolysing waste tire three fractions are obtained: solid residue (around 40 wt %), liquid fraction (around 50 wt %) and gas fraction (around 10 wt. %). The general trend is an increase in yields of liquid and gas fractions as the temperature increases. From the works devoted to tire pyrolysis, which are investigated on the generation of liquid fuel results that derived liquids are a complex mixture of organic compounds containing a lot of aromatics. These liquids can be used in different blends with diesel and can be used in practical diesel engines. Further study on this subject in the future may result in using tire oil as a primary fuel in diesel engine