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## **Fuel production from plastic waste with fast pyrolysis**

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### **Abstract**

Production of fuel from plastic waste by fast pyrolysis method. The objective of this study aims to investigate the effects for pyrolysis temperatures four level at 450, 450, 500 and 550°C of yield and fuel properties. The pyrolysis temperature which provides the highest fuel consumption were used to determine the effect of dolomite and kaolin catalysts. The experiment on using PVC plastic wastes particle size 0.1 mm weight 700 g in fast pyrolysis one hours of fluidised-bed reactor. The results showed that the pyrolysis temperature of 500°C gave the maximum fuel yield of 64 wt%. The properties of fuel were a higher heating value (HHV) 39.4 MJ/kg, viscosity 1004 cSt, density 1.5 g/ml, flash point 110°C and fry point 111°C. When using catalyst, the yield of fuel gain decreased. The dolomite catalysts reduced the fuel yields to minimum at 43 wt%. However, the use of catalysts helps increase the heating value of fuel. The dolomite catalyst allows the maximum HHV to increase to 42.1 MJ/kg. In addition, the kaolin catalyst also helps reduce the viscosity of the fuel reduces by half.

**Keywords:** Fuel, Plastic waste, Fast pyrolysis