

**CHARACTERISTICS OF MIXED SOLAR AND BIODIESEL FIRE
DIFFUSION**

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ABSTRACT

Indonesia's energy demand has risen year after year in tandem with the country's growing economy and population. Between 2000 and 2014, the average yearly increase in energy demand was 36 million barrels of oil equivalent (BOE). Biodiesel (vegetable oil) is an alternative to diesel fuel that can be used as both a substitute and a replacement. Because biodiesel has the same physical qualities as diesel oil, it can be used as a diesel-engined vehicle's alternative fuel. combustion Diffusion is a type of fire that occurs when fuel is warmed and oxygen is mixed in. The goal of this research was to see how the proportion of diesel fuel in a biodiesel mixture affected color, angle, flame height, and fuel consumption. Flame height, flame angle, and flame color are among the parameters utilized in the flame diffusion test. B100 has an 85.835 % blue and 6.82 % red fire color, whereas B40 has a 59.952 % blue and 31.536 % red fire color. The maximum firing angle is B40, which is 16,869 degrees, and the lowest is B100, which is 10,985 degrees. The maximum flame height was B100, which measured 26.523 mm, while the lowest was B40, which was 19,595 mm. B40 has the largest proportion of gasoline use at 52.83 %, while B100 has the lowest at 43.11 %.

Keyword : biodiesel, solar, diffusion