

농업용 온풍난방기에서 동물성바이오디젤의 연소특성

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Characterizing Animal-fats Biodiesel as Heating Fuel for Agricultural Hot Air Heater

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Biodiesel (BD) was made from animal-fats reacting with methanol and potassium hydroxide in the laboratory. The biodiesel made in the laboratory was sent to K-petro, the government agency, to inspect the quality of animal-fats biodiesel, of which generally the quality was acceptable for heating oil for agricultural hot air heater. Kinematic viscosity and calorific values of the biodiesels were measured. BD20(K), kerosene based biodiesel, showed 18cSt at -20°C. It seems that BD100 can not be suitable for heating fuel under some temperature. As BD content increased calorific value decreased, up to 40,000J/g for 100% BD, while light oil calorific value was 45,567J/g, showing difference of 5,567J/g, about 12% difference. Several different fuels, BD20, BD50, BD100 and light oil, were prepared and tested for fuel combustion qualities for agricultural hot air heater and their combustion performances were compared and analyzed. Flame dimensions of biodiesels and light oil were almost same shape at the same combustion condition in the burner of the hot air heater. Generally CO₂ amounts of BDs are greater than light oil. But, the differences are so small that it is hard to tell there was significant difference existed between the BDs combustion and light oil.

Key words : Biodiesel, Animal-fats, Combustion, Hot air heater

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