

Nattawut Sasitorn 2009: Comparison Experimental Study of Performance and Wear in Carburetor and Injection System Motorcycle with Jatropa-Gasoline Blended Fuel. Master of Engineering (Mechanical Engineering), Major Field: Mechanical Engineering, Department of Mechanical Engineering. Thesis Advisor: Assistant Professor Taweedej Sirithanapipat, Ph.D. 131 pages.

This research aims to verify the possibility of using the mixed-fuel between jatropa oil and gasoline. Gasoline used in the research has a octane number of 91. The ratio of mixed-fuel between jatropa oil and gasoline is 95:5 and 90:10. The physical properties of the jatropa oil and mixed-fuel are presented. The comparisons of using this mixed-fuel are carried on under the aspects of performance, fuel consumption, emission and wearing. The tested vehicle is the 4-stroke carburetor and Injection engine motorcycle. The mixed-fuel acidity and viscosity exhibit insignificant change after the several weeks period. No separation of the jatropa oil and gasoline is detected. After the road test, using Bangkok driving pattern, the engine is able to operate with the mixed-fuel. In carburetor engine, the maximum torque is less than the pure gasoline about 0.68% and 1.24%, maximum power is less than the pure gasoline about 5.35% and 11.4%, fuel consumption is higher about 6.21% and 12.74%. In Injection engine, the maximum torque is less than the pure gasoline about 0.99% and 1.65%, maximum power is less than the pure gasoline about 5.9% and 2.47%, fuel consumption is higher about 2.26% and 12.12%. Emissions on THC and CO are less than the standard as well. Physical wearing on parts is not different from the engine using gasoline octane 91. The effects of mixed-fuel to engines show that they were no significant difference in dimension and surface of the two test engines.

Student's signature

Thesis Advisor's signature

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