

## **Variations in Material Composition In Making Brake Pads Against Wear Rate And Working Temperature.**

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### **ABSTRACT**

*Motorcycles are vehicles that are very popular among the people of Indonesia so that the number of motorcycle production vehicles increases. On the other hand, an increase in the number of production will also increase the number of accidents that will occur in road traffic. The accident itself is caused by several factors, including humans, vehicles, and the environment. The vehicle factor is an important factor in driving so that there are no accidents on highway traffic, one of the factors that cause accidents is the failure of components or sub-assemblies in carrying out their functions. Therefore, this study requires a tool to determine the working temperature that can be monitored at any time by making a thermoinfrared using Arduino. The thermoinfrared method using arduino is considered effective because its component, namely the arduino lcd, thermoinfrared sensor, is economical and affordable compared to thermoinfrared devices on the market. The results of the research testing the coefficient of friction obtained values of 0.70 for material composition 1, and 0.57, composition 2 and 0.55 for material composition 3. Testing the wear rate of several variations of material composition 1, 2 and 3 at 3500 RPM, The highest wear is on the composition of material 3 which is  $9.73 \times 10^{-9}$  gram/mm<sup>2</sup>.second. Meanwhile, the wear rate for composition 2 is  $1.14 \times 10^{-8}$  gram/mm<sup>2</sup>.second, and for material 1 it is  $7.62 \times 10^{-9}$  gram/mm<sup>2</sup>.second. at 4000 RPM, it has a wear rate of material composition 3 which is  $2.32 \times 10^{-8}$  gram/mm<sup>2</sup>.second. In composition 2 the value is  $1.52 \times 10^{-8}$  gram/mm<sup>2</sup>.second, and for ingredient 1 the value is  $1,100 \times 10^{-8}$  gram/mm<sup>2</sup>.second. At 4500 RPM, the wear rate of material 2 is  $2.66 \times 10^{-8}$  gram/mm<sup>2</sup>.second. in the composition of the ingredients, the value of composition 3 is  $2.42 \times 10^{-8}$  gram/mm<sup>2</sup>.second, composition 1 is  $1.63 \times 10^{-8}$  gram/mm<sup>2</sup>.second.*

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