ABSTRACT

IRON AND GRAPHITE POWDER EFFECT OF FLY ASH COMPOSITES RESISTANCE WEAR / PHENOLIC FOR APPLICATIONS BRAKE

By

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In Indonesia, a waste product of combustion steam power plants continues to increase, in 2000 the amount of fly ash reached 1.66 million tons, and increased significantly to 2 million tons in 2006. The amount of fly ash generated from year to year is not over in a way that has not been handling. One solution to this problem is to capitalize on fly ash as an alternative to the manufacture of composite materials.

Composite is a combination of two or more substances to form new materials. With a mix of 60% phenolic matrix material, the reinforcing material 5% fly ash, barium sulfate filler 10%, 5% NBR binder and filler with graphite and iron powder ratio of 5%, 10% and 15%. With the method of hot pressing so that the formed composite. This study was conducted to determine the effect of iron powder and graphite to the wear resistance of composite fly ash / phenolic through and abrasion testing to determine the cause of the failure of composites through the observation area of the failure by SEM photograph.

The addition of iron powder and graphite composites can improve the wear resistance of fly ash / phenolic arrive at a certain percentage. Graphite can increase the wear resistance of composite fly ash / phenolic together with iron. The average value of specific high abrasion on the composition of the composite with a composition of 10% iron and 10% graphite with a value of $2.47 \times 10^{-6} \text{mm}^3 / \text{mm}$, it is because graphite can be bound either by phenolic and barium sulfate so that the average value of specific abrasion becomes In the composite high observation using SEM images show the bonding between the particles and the matrix. SEM photograph showing a composite with a uniform distribution of particles will produce the wear resistance becomes high, while composites with uneven distribution of particles will cause a void, so that the wear resistance is low.

Keywords: Composite Particles Fly Ash, Iron And Graphite Powder, Endurance Wear, SEM.