

# A Review on Development of wire wool base friction material

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## Abstract

Automobile car disc brakes are safety-critical components whose performance depends strongly on contact conditions at the pad to disc interface. During braking both brake pad and disc surfaces worn, affecting the useful life of the brake as well as its behavior. From literature, it is found that asbestos is widely used in automobile disc brake pads. But it is found that it may cause cancer to human being because of its carcinogenic nature. Therefore the aim of this study is to analyze the effect of different material compositions on friction & wear of the brake pad. The effect of wire wool fiber content varying from 4 to 12 % and barites varying from 24 to 32 % on the wear behavior of asbestos-free brake pad has to investigate.

Keywords – Asbestos, carcinogenic, wire wool, barites

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## 1. INTRODUCTION

A vehicle brake is a brake used to slow down a vehicle by converting its kinetic energy into heat. The basic hydraulic system, most commonly used, usually has six main stages. The brake pedal, the brake boost (vacuum servo), the master cylinder, the apportioning valves and finally the road wheel brakes themselves.

A brake is a device by means of which artificial frictional resistance is applied to moving machine member, in order to stop the motion of a machine. In the process of performing this function, the brakes absorb kinetic energy of the moving member or the potential energy given up by objects being lowered by hoists, elevators etc. The energy absorbed by brakes is dissipated in the form of heat. This heat is dissipated in the surrounding atmosphere to stop the vehicle, so the brake system should have following requirements:

- The brakes must be strong enough to stop the vehicle within a minimum distance in an emergency.
- The driver must have proper control over the vehicle during braking and vehicle must not skid.

- The brakes must have well anti-fade characteristics i.e. their effectiveness should not decrease with constant prolonged application.
- The brakes should have good anti-wear properties.

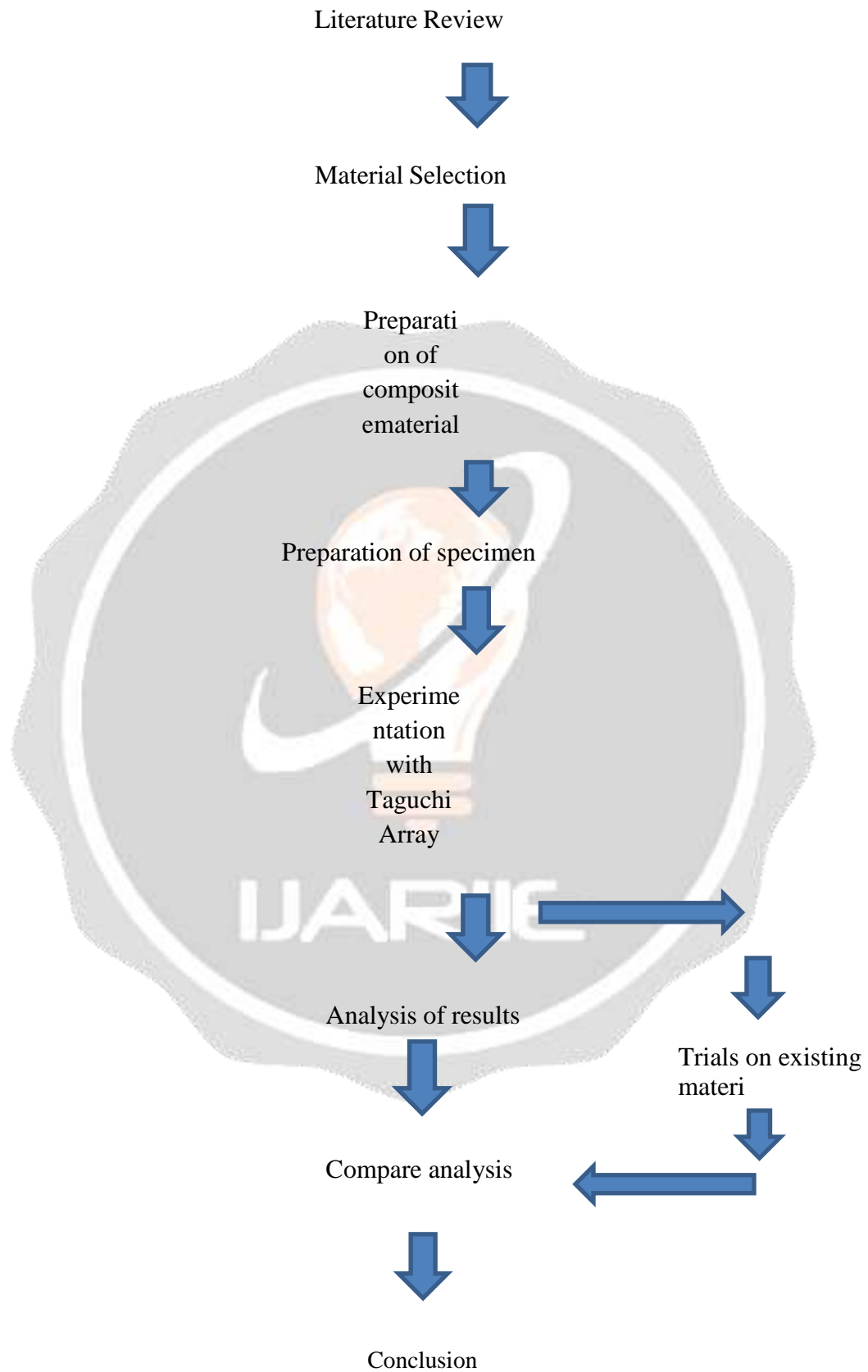
## 2. Objective

- To prepare sample of brake pad materials with reinforcement of steel wool.
- To study tribological properties of Steel wool composite (Coefficient of friction & wear rate etc.)
- To introduce a new alternative for NAO material for brake pad.
- Experimental verification of selected material at different temperatures.
- To determine significant parameter affecting wear and coefficient of friction.
- Study of worn surfaces of tested samples using SEM.
- Comparative study of developed composite material with commercial asbestosbased brake pad material.

## 3. Conclusion From literature review

From this literature review it is found that asbestos, antimony trisulphide, copper are found to be injurious to health of human being. Therefore, it is necessary to replace these materials used in brake pads with some composite materials. In many papers research has been done on changing formulations of the composite materials. Different natural, organic and metallic fibers composites have been tested. The tests are conducted on chase type friction monitor, brake dynamometer or pin on disc machines. Load, speed, temperature, sliding distance is found to be important parameters for conducting experiment. Therefore, it is found that very less work is done using the steel wool as fiber content and testing the composite for friction and wear of automobile brake pad.

## 4. Methodology of study



## 5. References

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