

International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Balapur P.O., Hyderabad – 500005, Telangana, India



Fe- based cerametallic friction pads for clutch plates of heavy vehicles

Overview

Sintered Fe-Cu based cerametallic friction materials/pads for clutch and brakes of commercial heavy vehicles like trucks and tractors are presently being imported. These friction pads are riveted to steel back plates and fixed to the carrier plates before assembling in the clutch housing. The life of the friction pad is limited to the depth of the rivet; limiting 100% utilisation of the friction material/pad and with usage, the failure is initiated along the rivet hole. Further, rigid bonding introduces a little discomfort arising out of judder while driving. The project involves innovative methods of replacing riveted clutch buttons with bonding of friction cookies directly onto the clutch plate, dispensing with the requirement of the additional steel back plate. A patented technology with reduced number of processing steps with compositional change and indigenous equipment design has been developed to increase driving comfort along with increased life of clutch system.

Key Features

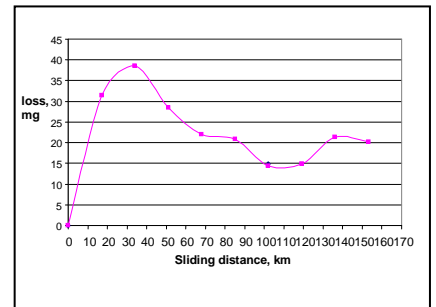
- Use of non carcinogenic materials
- Improved wear and coefficient of friction
- Fe-based sintered pad
- Flexibility of single or dual sintered friction pads
- Indigenous equipment for processing
- Reduced post sintering operations
- Production level manufacturing process



Indigenously designed Multi Piston Hot Press

Potential Applications

- Clutch and brakes of heavy commercial vehicles
- Aircraft brakes
- Passenger vehicles like buses
- Wind mill applications
- Railways
- Military tanks



Weight loss of friction pad with distance

Intellectual Property Development Indices (IPDI)

- Performance and stability are validated at laboratory scale
- Prototype level demonstrated
- Scale up design of equipment and technology available

Status	1	2	3	4	5	6	7	8	9	10
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Major Patents / Publications

1. Malobika. K and A. Siva Kumar, 'A Process and a Multi Piston Hot Press for Producing Powder Metallurgy Components, such as Cerametallic Friction Composites', application no. **3844/DEL/2011**, dtd. 28.12.2011

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