

SINTERED METALLIC DISC BRAKE PADS FOR AUTOMOBILES

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Disc Brake Pads



TOYOTA COROLLA

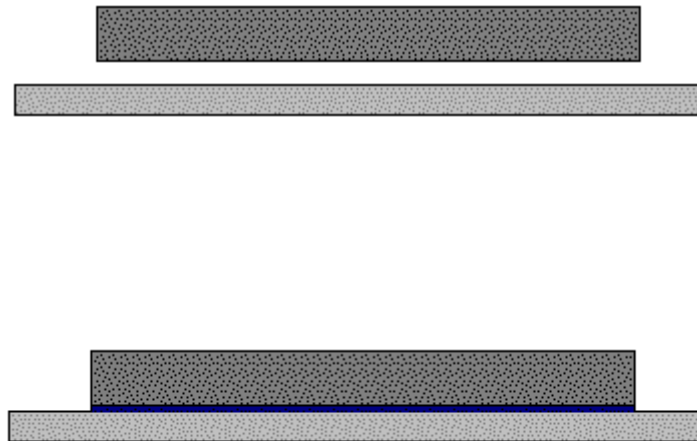
TATA SUMO



Required Pad Properties

- ✓ A stable coefficient of friction at all conditions
- ✓ Uniform adsorption and dissipation of energy
- ✓ High shear strength
- ✓ High thermal conductivity
- ✓ High specific heat
- ✓ Low wear rate
- ✓ Minimal damage to rotor disc

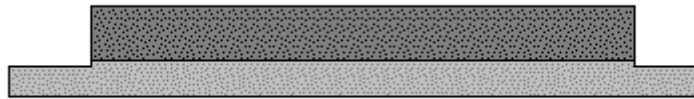
The present generation manufacturing is by two piece construction. A friction face and support plate. Mixing deferent materials with thermo setting organic adhesives to make a friction face, and joining to metal back plate for support and transfer the brake pressure.



Disadvantages

- *Carburization of organic material on surface due to heat accumulation
- *Poor heat dissipation
- *Variation of coefficient of friction
- *Thermal cracking of the friction face
- *Separation of friction pad and support plate
- *Aging due to heat and radiation
- *Fungus formation and loss of mechanical strength

Single homogeneous component to solve all problems by metal
Matrix composites

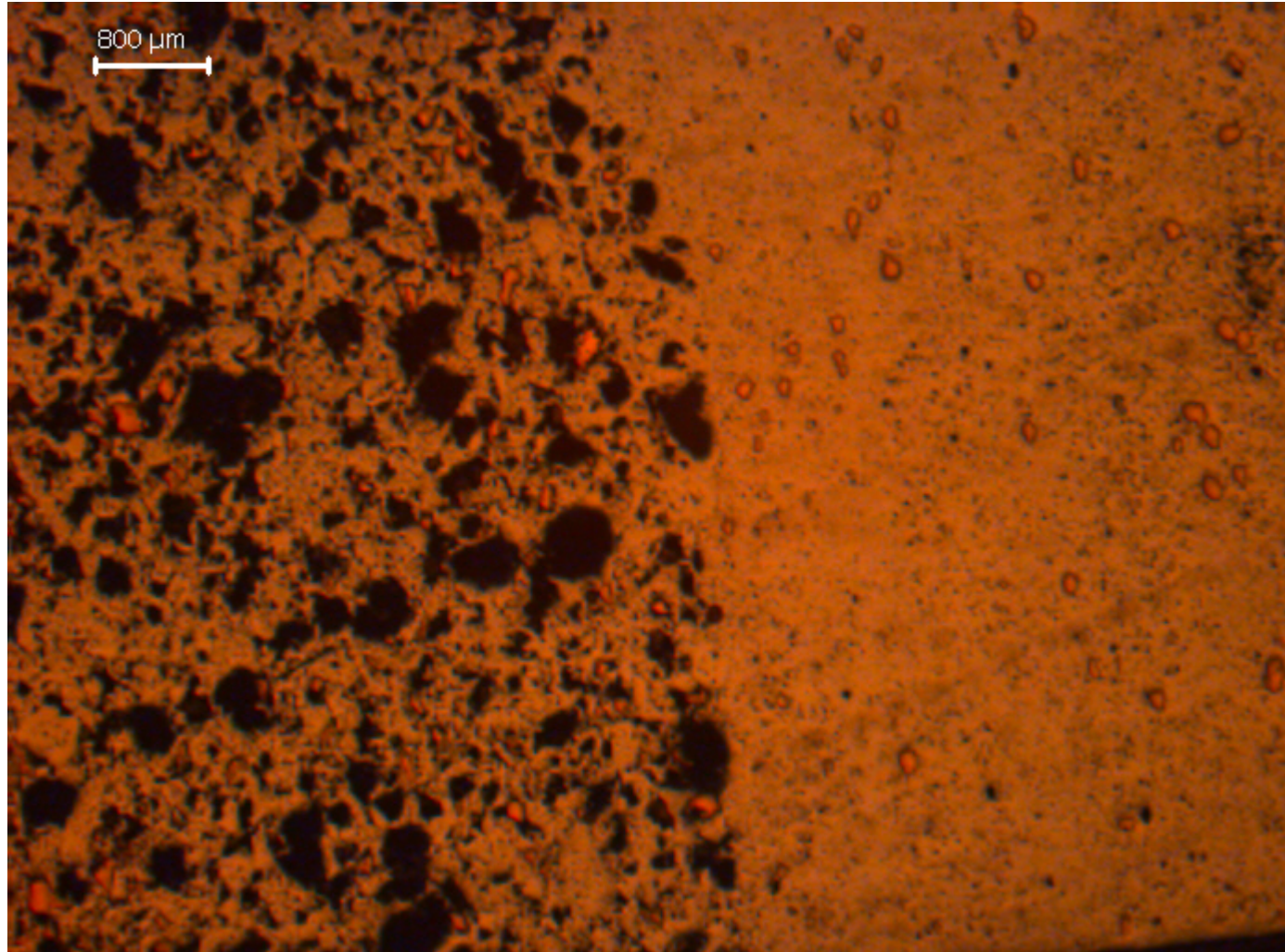


Compaction of different metal powders and friction agents in single step
compaction and sintering in controlled atmosphere

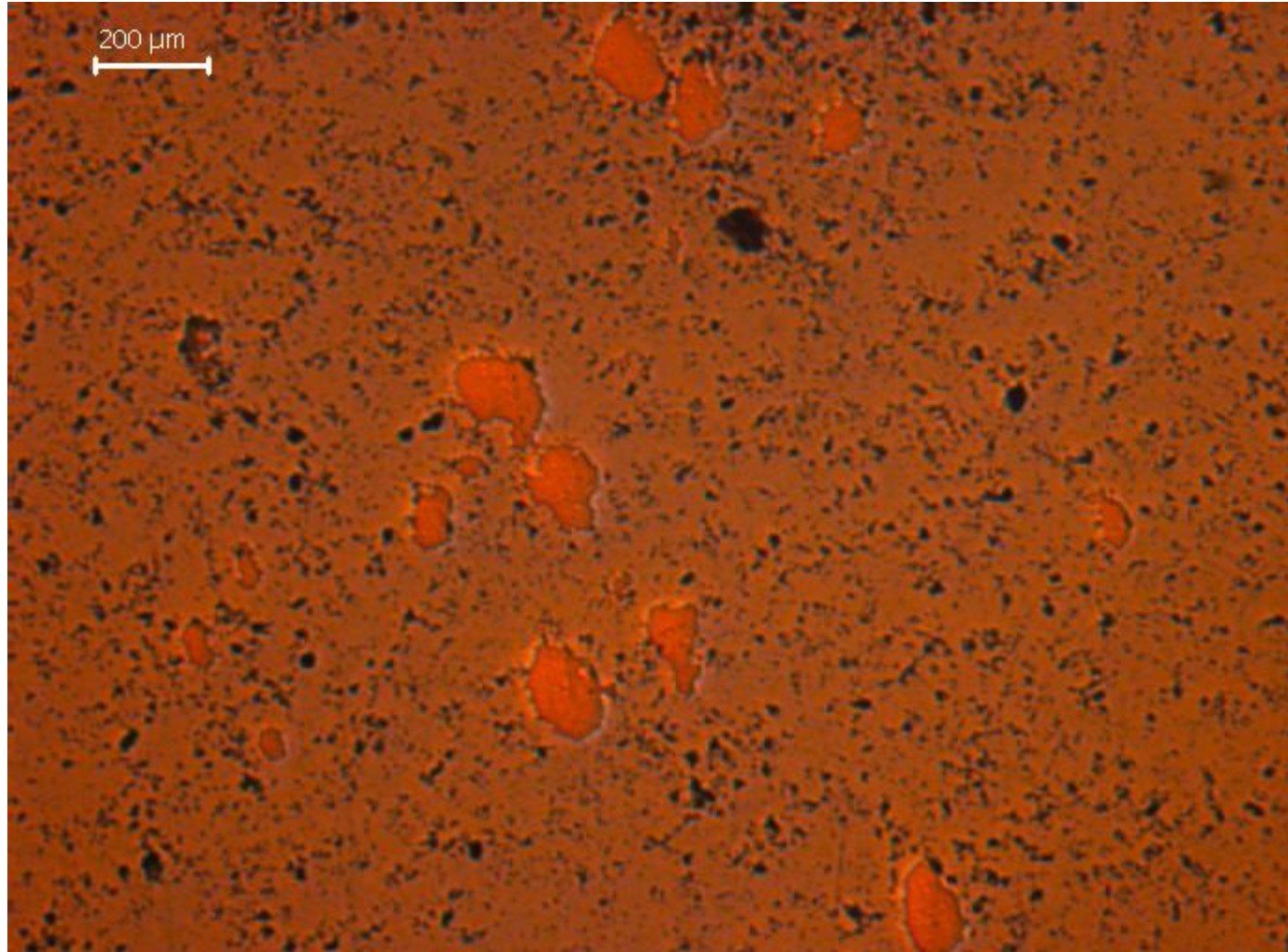
Advantages

- *High rate of production
- *No separation or bonding of plates
- *No chipping or cracking
- *No scrap or pollutants
- *Controlled coefficient of friction or properties
- *Clean and sharp edges
- *Light weight
- *Un limited shelf life

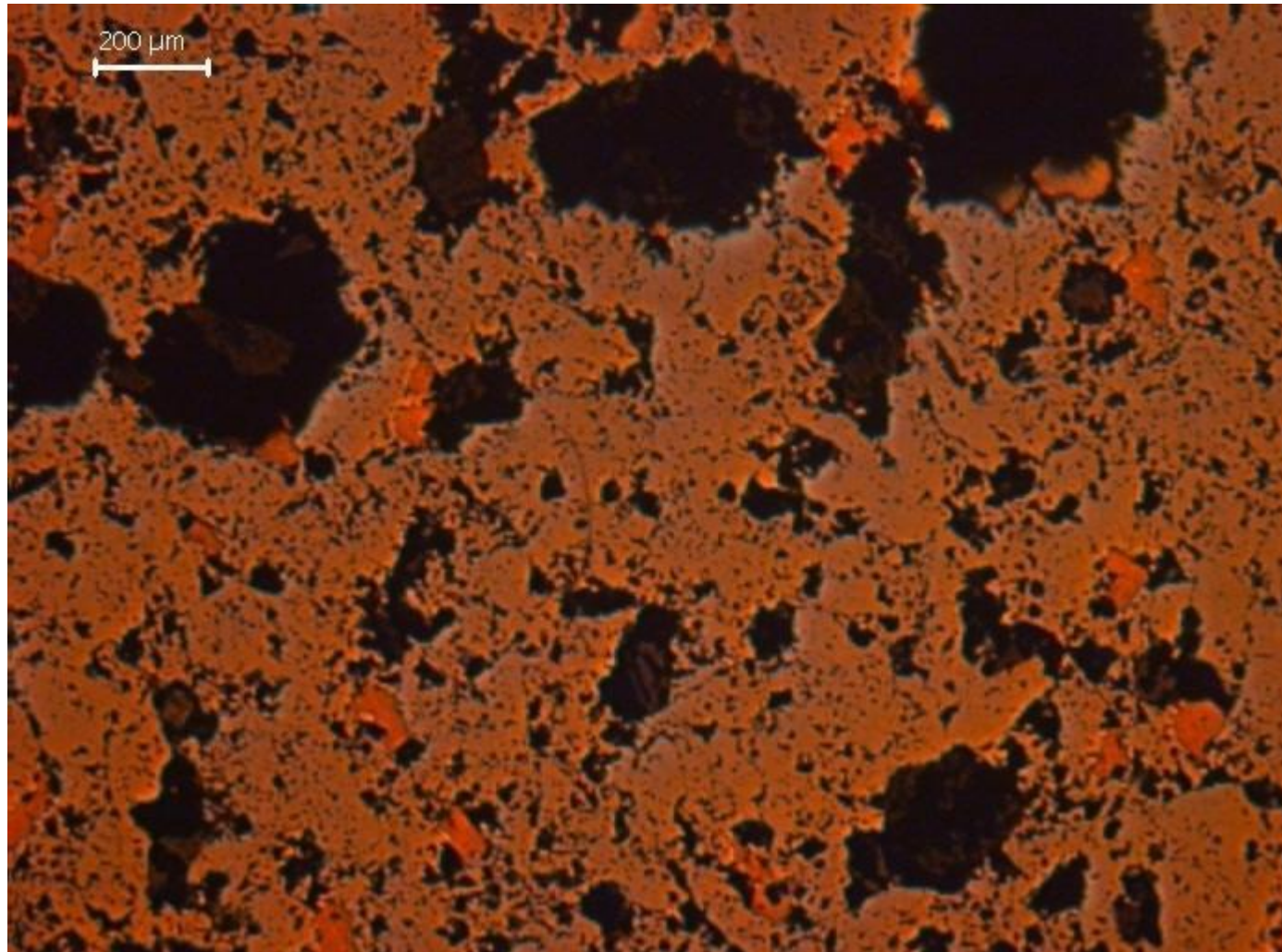
Magnified image of Interface



Magnified image of back Plate



Magnified image of Friction Face



Comparative Test Results

Under similar test conditions

Test	Sintered Metal Pad	Conventional Pad
Run down revolutions	19	29
Run down time (Sec)	3.3	5.1
Coefficient of friction	0.4	0.27
Mean torque, Kgfm	52	36
Peak torque, Kgfm	69	43
Mean drag, Kgf	291	202
Peak drag, Kgf	380	237
Thickness wear, mm	0.15	0.15
Operating Temp. *C	-80/ +700	-10/+250



PMAI

POWDER METALLURGY ASSOCIATION OF INDIA

PM-09



International Conference With Trade Exhibition

HIGH PERFORMANCE MATERIALS BY POWDER METALLURGY FOR AUTOMOTIVE AND ENGINEERING INDUSTRY AND
THE 35TH ANNUAL TECHNICAL MEETING OF PMAI

Certificate of Award

Best PM Product 2009

Sintered metallic disc brake pad

Awarded to

AKHILESH ENGINEERING, Hyderabad, India

in the international powder Metallurgy Conference PM-09
and the 35th Annual Technical Meeting of PMAI
held at Cidade De Goa Resort,
Vanguinim Beach, Panjim Goa, India
from Feb. 16-18, 2009




President (PMAI)


Convener PM 09

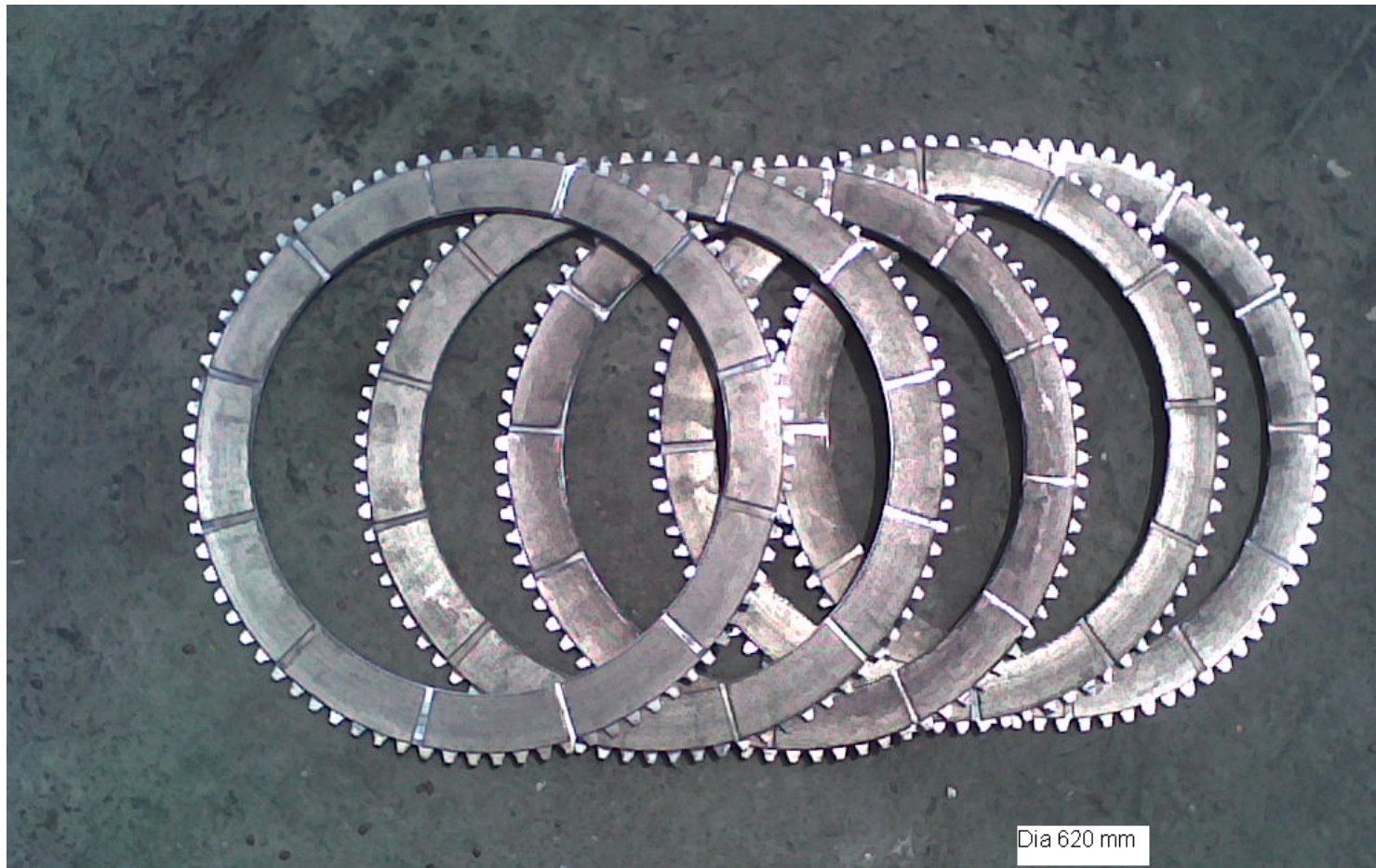
Dated : 20th February, 2009

Best PM Product award





Sintered metallic Clutch plates for heavy machinery, earth movers and army tanks





Redson Industries Pvt. Ltd.
Manufacturers of High
Pressure Seamless Steel
Gas Cylinders





LPG Plant

**Manufacturers of LPG Cylinders for
Domestic and Automobile Industries.**



Thank you



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