INVESTIGATION OF CARBONIZED PALM KERNEL SHELL AS A REINFORCING FIBRE MATERIAL IN BRAKE LINING FORMULATION.

BY

ADESINA ABDULJELIL ‘DEBISI
2006/24475EM

DEPARTMENT OF MECHANICAL ENGINEERING,
SCHOOL OF ENGINEERING AND ENGINEERING TECHNOLOGY
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGERIA

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ADESINA ABDULJELIL 'DEBISI
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NOVEMBER, 2010
DECLARATION

Hereby declare that this research work titled “Investigation of carbonized palm kernel shell as a reinforcing material in brake lining formulation” has not been presented wholly or in part for the award of any degree elsewhere. Information derived from personal communication, published or published works of other persons have been duly acknowledged in this thesis.

Adesina Abduljelil ‘Debisi

2006/24475EM

Date

03-12-10
CERTIFICATION

This research project titled “Investigation Of Carbonised Palm Kernel Shell As Reinforcing Material In Brake Lining Formulation” carried out by Adesina, Abduljelil ‘Debisi, as read and approved having met the requirement for the award of Bachelor of Engineering (B.ENG) Degree in Mechanical Engineering, of Federal University Of Technology, Minna.

ENGR. S.A. LAWAL
Project Supervisor

PROF. R.H KHAN
Head of Department

External Examiner

Date and Signature

1/11/2010
DEDICATION

This project work is dedicated to the Almighty Allah who has been my strength all through my life and also to my parents Alhaji and Hajia A.R Adesina for their moral and financial support. I pray Allah grant you your heart desires (Amin).
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I give praise to Almighty Allah, Subhanallahu Wata Allah for His bountiful blessings upon me. He has been my source of strength, wisdom and success in this project and always, I raise your name Jalla Jallallahu.

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ABSTRACT

This study investigated the use of new materials to replace asbestos in brake linings. The automotive industry currently uses over 2000 different materials and their variants. In this study, the use of carbonized palm kernel shells was investigated for its suitability as a reinforcing fibre in brake linings. Palm shells contain fibres which give the fibrous property required for asbestos. The palm fruits were fresh and the oil depulped. The palm shells were then left to dry before carbonization. Carbonization was done in a muffle furnace at three varying temperatures of 150, 250, and 300 degrees Celsius. Particle sizes were obtained and the samples thus obtained were tested for various properties: water absorption, moisture content, apparent porosity, surface area and volume.
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