شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

CHARACTERIZATION OF ALUMINUM NICKEL COMPOSITE REINFORCED BY GRAPHENE AND SILICON CARBIDE

By
Aya Ahmed Ibrahim Mohamed

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Mechanical Design and Production Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Under the Supervision of

Prof. Dr. Abdul Halim Elhabak

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Associate Professor Head of Powder Technology Division
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Approved by the
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Title of Thesis:

Characterization of Aluminum Nickel Composite reinforced by Graphene and Silicon Carbide

Key Words:

Al/Ni/Sic/GNPs, powder metallurgy, Hardness, Wear, compression.

Summary

This study presents Al-Ni composite reinforced by GNPs and SiC with different volume fraction by powder metallurgy technique. Besides, the obtained composites were investigated with different tests such as microstructure, relative density, hardness, wear, compression, and coefficient of thermal expansion tests. The results showed that by addition of SiC and increasing its percentage, the physical and mechanical properties are increased by increasing SiC up to 15 wt% then deceased. Also XRD showed the formation of new phases formed Al_3Ni, Ni_3C.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.
I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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Signature:

DEDICATION

THIS THESIS IS DEDICATED
WITH LOVE AND AFFECTION
TO MY PARENTS AND MY HUSBAND

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Aya Ahmed Ibrahim

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