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
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HANAA ALY

EFFECT OF GRAPHENE NANOPLATES (GNPS) COATED AG ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF AL-CU ALLOY

By

Reham Ahmed Hany Elmetwally

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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Title of Thesis:

Effect of graphene nanoplates (GPNs) coated Ag on microstructure and mechanical properties of Al-cu alloy

Key Words:
Aluminum ; Copper; Nano graphene; Powder metallurgy; friction

Summary:

This thesis studies the Mechanical and tribological Properties of pure Aluminum nano powder, Aluminum Copper and Aluminum Copper Graphene with various volume fraction of the reinforcement material. The used reinforcement material is Graphene Nanoplates (GNPs) with various content (0.4%, 0.6%, 1.2% and 1.8%) while the copper has 15% percentage of the composite. The electroless deposition technique was investigated by coating the GNPs with Ag then precipitate the Cu on its surface. Many of tests are applied on the obtained samples such as SEM, Xrd, density, stress tests of Hardness and compression to determine the highest reinforcement percentages that can accomplish the most suitable characteristics.

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.

Name: Reham Ahmed Hany Elmetwally Date: / / 2020

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Dedication

This thesis is dedicated with love and affection to my parents.

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