

# Electrodeposition and Corrosion Analysis of Ni-Mo Alloy Coatings

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- Vandana V. Iragar (1)
- Shailashree Mendon (1)
- Shraddha Acharya (1)
- Sujaya (1)
- Sujana (1)
- V. Anjana Pai (1)
- D. Rashmi (1)
- G. P. Pavithra (1) Email author (pavithra.gp2008@gmail.com)

1. Alva's Institute of Engineering and Technology, Mijar, , Mangaluru, India

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## Abstract

Binary Ni-Mo alloys were electrodeposited in citrate electrolytic solution at a pH of 9.5. EDS analysis determined the deposit composition and increase in the % wt of Mo with increased applied current density (c.d.). XRD analysis reveals deposits exhibit single Ni-Mo solid phase. SEM micrograph shows that the morphology is clearly altered when the Mo concentration increases. Corrosion behavior of nanocrystalline Ni-Mo alloys was carried out potentiodynamically and electrochemical impedance spectroscopy in 0.5 M H<sub>2</sub>SO<sub>4</sub>. The corrosion resistance of the coatings was explained based on the structural interpretation of Ni-Mo alloys. The highest corrosion resistance accompanied by electrodeposits containing least wt% of Mo.

## Keywords

Ni-Mo alloys Potentiodynamic polarization studies Nyquist plot SEM-EDS XRD

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## Notes

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PRINCIPAL  
Alva's Institute of Engg. & Technology,  
Mijar, MANGALURU - 574 225, INDIA



## A Review on Tribological Behaviour of Natural Fiber Reinforced Polymer Composites

C B Manjunath<sup>1</sup>, C V Srinivasa<sup>2</sup>, Basavaraju B<sup>3</sup>, G B Manjunatha<sup>4</sup> and Ashok R B<sup>5</sup>

<sup>1,2,4</sup> Department of Mechanical Engineering, GM Institute of Technology, Visvesvaraya Technological University, Davanagere, Karnataka, India.

<sup>3</sup> Department of Chemistry, Alva's Institute of Engineering and Technology, Visvesvaraya Technological University, Moodbidri, Mangalore, Karnataka, India.

<sup>5</sup> Department of Mechanical Engineering, PES Institute of Technology & Management, Visvesvaraya Technological University, Shivamogga, Karnataka, India.

Corresponding email: srinivasacv@gmit.ac.in

**Abstract.** In the past, asbestos and copper were preferred as friction materials because they have good ability to dissipate heat, but have proven to be harmful to the environment. Recently, more researchers are focused on non-asbestos friction composite materials due to its non-toxicity and biodegradability. Despite synthetic fiber composites having eco-friendly nature, because of its cost and pollution most of the researchers show interest on natural fiber composites. Hence, there is a need to explore the analysis on the tribological behavior of composite materials. The availability of natural fibers and the ease of manufacturing have tempted researchers to study their feasibility of their application as reinforcement and the extent to which they satisfy the required specifications in tribological applications. Hence, the aim of this review is to demonstrate the tribological behavior of natural fiber reinforced composites and find knowledge about their usability for various applications that tribology plays a dominant role. This review presents the reported work on natural fiber reinforced composites with special reference to the type of fibers, matrix, polymers, treatment of fibers and test parameters to understand their usability for various automotive applications.

**Keywords:** Natural fibers; Friction materials; Tribological behaviour; Natural fiber reinforced polymer composites

### 1. Introduction

The modern world today is preoccupied with the speed and efficiency of machines and structures. It needs quality fabrics in the designer's hands to be used for the applications. Scientists have produced and are improving newest and older technologies for many specific applications such as space, aircraft, marine, and industrial, and structures, and it is important to study existing products in order to further understand them in service condition. One third of our global energy consumption was wastefully devoured in friction. Beyond the main energy saving, very important additional economics will be rendered by rising the costs involved with producing and removing unnecessarily burned out parts. Wear dissipation of energy strongly impairs the national economy and most people's lifestyle. Therefore, the effective diminution and control of metal wear is always desired.



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