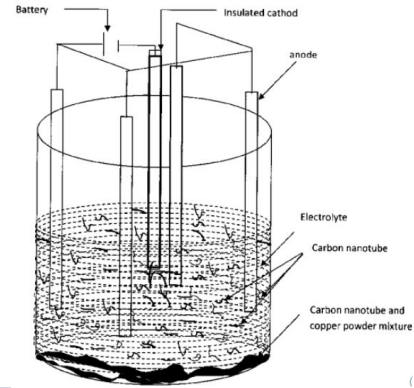


GRANTED**(IN296391)**

Method of producing uniform mixture of copper and carbon nanotube in bulk for copper metal nanocomposite



NEED

Conventional metal composites show 30% lower mechanical strength and 25% faster thermal fatigue under industrial stress. Poor dispersion of carbon nanotubes limits their true potential, leading to shorter equipment life, maintenance shutdowns, and \$15B global losses annually.

TECHNOLOGY OVERVIEW

This invention enables uniform dispersion of single-walled or multi-walled carbon nanotubes into copper or nickel matrices using a point electro-co-deposition method. The resulting nanocomposite powders significantly enhance strength, conductivity, and wear resistance without altering existing manufacturing processes.

TECHNOLOGY KEY FEATURES

Uniform CNT dispersion, enhanced conductivity and strength, scalable electrolysis-based preparation, compatibility with copper and nickel, reduced manufacturing defects, storage in inert conditions for long shelf life.

[Read more here](#)

MARKET ANALYSIS

The global nanocomposites market is projected to reach \$23.3 billion by 2033, growing at a CAGR of 14.1%, driven by demand in electronics, automotive, and energy storage sectors. [Source: Precedence Research, 2024]

Target Industries

Advanced Electronics, Aerospace Components, High-Performance Industrial Coatings, Nanomaterials manufacturers, composite parts fabricators, R&D-driven metal component developers.

AT A GLANCE

- SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action)

Technology is available for licensing/ co-development.

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