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Presentation title: - Embed the martensite phase in non-ferrous metal matrices (for ex. Cu) by mechanical alloying and consolidation for enhancing the better mechanical properties, with good conductivity also.

College: - National Institute of Technology Warangal

Student Level: - Post Graduate

Presentation type: - Oral Presentation

Abstract

Cu_(100-x)-(Fe-0.8wt%C)_x composites (x = 20, 30, and 40) were prepared by mechanical alloying and consequent powder consolidation by hot pressing. Hardness was measured using Rockwell B-scale (HRB). Characterization was performed using x-ray diffraction (XRD) and scanning electron microscopy (SEM). Results indicated an increase in hardness from a nominal 49 HRB for pure Cu to 76.5 HRB for (X=20), 84.2 HRB (X=30) and 91 HRB (X=40) for the composite, so it's clearly indicating strength is also increasing by increasing the alloying composition of (Fe-0.8wt%C). XRD results indicate formation of the cohenite (Fe₃C) phase in the Fe-C powders.