

## عنوان مقاله:

Synthesis and Characterization of Nanocrystalline Ni3Al Intermetallic during Mechanical Alloying Process

## محل انتشار:

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## خلاصه مقاله:

In this research, formation of nanocrystalline Ni3Al intermetallic from Ni and Al elemental powders by mechanical alloying (MA) process and its characterization was investigated. Therefore, the evolutions in microstructure such as phase transformation, oxidation in air and introduction of Fe impurity from milling media after MA were evaluated using XRD, Rietveld refinement, TEM, SEM, EDS and ICP analyses. Milling after 4 h resulted in formation of Ni3Al/Al2O3 composite in air while continuing milling time up to 8 h resulted in obtaining Ni3Al product. TEM observations along with XRD combined Rietveld's refinement analysis confirmed the existence of a disorder structure and nanocrystals of Ni3Al embedded in an amorphous matrix after 16 hours of milling. Moreover, the lattice parameter of Ni3Al product and Fe contamination of powder were increased by increasing milling time.

## کلمات کلیدی:

Ni3Al, Mechanical alloying, Structural evolutions, Nanostructure, XRD, Rietveld refinement, TEM

## لینک ثابت مقاله در پایگاه سیویلیکا:

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