

## عنوان مقاله:

Synthesis and Characterization of Nanostructured -Al<sub>12</sub>Mg<sub>17</sub> Intermetallic Particles By Mechanical Milling

## محل انتشار:

دومین همایش ملی نانو مواد و نانو تکنولوژی (سال: 1389)

تعداد صفحات اصل مقاله: 7

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## خلاصه مقاله:

Pre-alloyed -Al<sub>12</sub>Mg<sub>17</sub> intermetallic compound were milled in attritor ball mill in order to understand the structural evolution during mechanical milling (MM). The phases evolution and microstructure were characterized by X-ray diffraction (XRD). The crystalline size and internal strain were evaluated by XRD patterns using Williamson–Hall and Scherrer methods. Scanning electron Microscopy (SEM) was used to study powder morphology, particle size and distribution. The results demonstrate that, Due to the brittleness of the starting material, the -Al<sub>12</sub>Mg<sub>17</sub> phase already displays a strong decrease of the grain size in the first stages of milling as a result of the repeated fracturing of the powder particles. With increasing milling time, a submicron intermetallic powder with nanocrystalline grain size in the range of ~30 and ~100 nm (from X-ray diffraction, XRD) and particle size in the range of ~200 nm and ~1 μm (from SEM micrographs) is formed.

## کلمات کلیدی:

Mechanical milling; Intermetallic compound; Nanocrystalline structure

## لینک ثابت مقاله در پایگاه سیویلیکا:

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