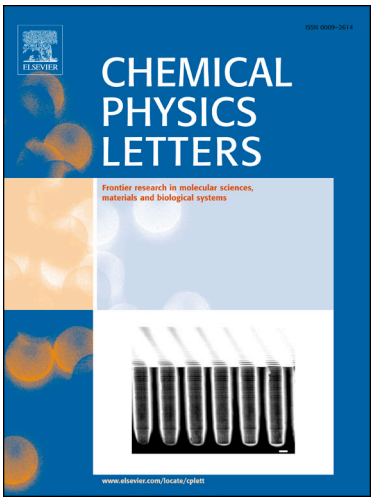

Research paper

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The Magnetic and Structural Properties of AlNiCo-8 Alloy Particles Synthesized by CaH_2 Reduction

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Abstract:

AlNiCo-8 alloys were synthesized by annealing a mixture of Al/Ni/Co/Cu/Fe/Ti oxides and CaH_2 in an inert gas environment. In four parallel experiments, the annealing temperature was controlled as 500, 600, 700 and 800 ^oC, respectively. The magnetic properties were investigated by VSM. The results showed when the temperature was below 700 ^oC, a higher reduction temperature was beneficial to both crystallization and magnetic properties. However, when the temperature was above 700 ^oC, all oxides were reduced, and a further increased temperature did not bring much extra benefits on crystallization or magnetic properties.

Keywords: AlNiCo; Magnetic materials; CaH_2; Reduction; Nanocrystalline materials; X-ray techniques.

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