Production of Nanocrystalline Nickel Silver Powder by Mechanical Alloying

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Abstract

Production of nickel silvers by mechanical alloying (MA) was investigated, effect of parameters such as: the time of milling, milling speed, ball to powder weight ratio, ball size, atmosphere and chemical composition on mechanical alloying process and alloys color was studied. The products were characterized, by XRD and SEM.
According to results, nickel silvers could be produced by mechanical alloying in a wide chemical composition range. Alloyed powder with a silver contrast and 10 nm grain size could be obtained by optimization of milling parameters. Zinc content of the powder mixture has a significant effect on the minimum alloying time. Ball to powder ratio (B/P) up to 25, also, reduces the minimum alloying time and it has no significant effect above this value.

(A. Saidi, correctly at the University of Nottingham, UK, as a visiting professor)