عنوان مقاله:

The Effect of Temperature on the Purity of Nano-Scale Tantalum Powder Produced from Its Scrap by Reaction with Magnesium and Calcium

محل انتشار:

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خلاصه مقاله:

In this study, Ta powder was produced from Ta scarp via chemical processes using Mg and Ca powders. At first, Tantalum scraps were converted to Tantalum oxide (Ta۲O۵) at ۱۱۰۰˚C in an oxygen atmosphere. Tantalum oxide was reduced to Tantalum powder with Mg in a vacuum environment at ۹۵۰ to ۱۲۰۰˚C for ۳ hours. The obtained Ta powders further were reacted with Ca at ۹۵۰˚C for ۵ hours in a vacuum atmosphere. The powders were analyzed through X-ray diffraction patterns (XRD), scanning electron microscopy (SEM), as well as oxygen measurement. The results show .that the average particles size of the produced Ta powders is about ۵۸ nm with oxygen contents of ۲۵۰ ppm

کلمات کلیدی:

tantalum, refractory metal, magnesium, recovery process, magnesiothermic reduction