

Abstract Of The Disclosure

A method of manufacturing a sputter target the method including the step of preparing a plurality of raw materials into a composition corresponding to alloy system, the plurality of raw materials comprising pure elements or master alloys. The method also includes the step of heating the plurality of raw materials under vacuum or under a partial pressure of argon (Ar) to a fully liquid state to form a molten alloy corresponding to the alloy system, solidifying the molten alloy to form an ingot, and reheating the ingot to a fully liquid state to form a diffuse molten alloy. The method further includes the steps of rapidly solidifying the diffuse molten alloy into a homogeneous pre-alloyed powder material, admixing pure elemental powders to the homogeneous pre-alloyed powder material, consolidating the homogeneous pre-alloyed powder material into a fully dense homogeneous material, hot rolling the fully dense homogeneous material. Moreover, the method includes the steps of cold rolling the fully dense homogeneous material, and machining the fully dense homogenous material to form a sputter target.