



OO/UC3M/16 - DEVELOPMENT OF MULTIFUNCTIONAL TITANIUM-BASE ALLOYS

Nano-structured and Multifunctional Materials Laboratory of the Universidad Carlos III de Madrid (Spain) develops advanced alloys with improved properties for new technological applications. This is made producing materials with ultrafine grain size, or with a homogenous dispersion of nano-particles. Our Lab is interested in some type of scientific and technical collaboration with research centres or companies involved in this kind of developments.

Description of the technology

Ti-Ta-Nb-V-Zr-O and Ti-Nb-Ta-Zr-O with different compositions and improved mechanical properties are being produced. The improvement of their properties is due to an especial microstructure induced by mechanical alloying, followed by hot isostatic pressing at high temperature and equal channel angular extrusion, and a subsequent thermal treatment.

It is trying to obtain ductile materials with a high strength, a Young modulus very low and constant over a wide temperature range, high elastic limit, corrosion resistant, biocompatible, and with a thermal expansion coefficient virtually null in an ample range of temperatures around room temperature.

Innovative aspects

The superproperties of the named Gum Metal are attempted to obtain by means of a new route.

Competitive advantages

Have good structural materials with multifunctional characteristics.

Current stage of development of the technology: Secret know how

Keywords

Metals and Alloys; Non-ferrous Metals

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