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Diamonoid Stabilized Fine-Grained Metals

Tech ID: 20642 / UC Case 2007-171-0

BRIEF DESCRIPTION

This invention relates to stabilized and strengthened metals and, more specifically, to metals stabilized and strengthened, especially at high temperatures, by the addition of diamonoid. Recent evidence has indicated that such nanocrystalline alloys may provide mechanical and electrical properties superior to those of their coarse-grained counterparts.

FULL DESCRIPTION

A common method for strengthening metals without large decreases in ductility is to reduce the grain size of the metal. However, this strategy does not generally lead to improved strength at elevated temperatures because the grains grow larger by diffusion and grain boundary sliding can occur. This invention adds diamonoids to aluminum resulting in a marked grain size stability at elevated temperatures making it possible to retain the high strength of fine grained metals without sacrificing ductility.

ADVANTAGES

Readily produced fine grained and nanocrystalline metals and alloys of greater high temperature strength and stability.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,628,599	01/14/2014	2007-171

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OTHER INFORMATION

KEYWORDS

metals, fine grained, high temperature, aluminum, aerospace, nano grain size

CATEGORIZED AS

- » **Materials & Chemicals**
 - » Composites
 - » Nanomaterials
- » **Nanotechnology**
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