

Title (en)

COPPER TIN NICKEL PHOSPHORUS ALLOYS WITH IMPROVED STRENGTH AND FORMABILITY

Title (de)

KUPFER-ZINN-NICKEL-PHOSPHOR-LEGIERUNGEN MIT VERBESSERTER FESTIGKEIT UND FORMBARKEIT

Title (fr)

ALLIAGES À BASE DE CUIVRE, ÉTAIN, NICKEL, PHOSPHORE, À RÉSISTANCE ET APTITUDE AU FORMAGE ACCRUES

Publication

**EP 2215278 A1 20100811 (EN)**

Application

**EP 08837615 A 20081010**

Priority

- US 2008079573 W 20081010
- US 97906407 P 20071010
- US 24953008 A 20081010

Abstract (en)

[origin: US2009098011A1] A new copper-based alloy is described along with a processing method to make a strip that can be used for various automotive interconnects. The alloy process combination yields a material with high strength and electrical conductivity with excellent formability. The combination of properties result from a Cu-Sn-Ni-P alloy with optional Mg additions and thermal-mechanical processing to make an alloy with a conductivity of 40% IACS, yield strength of 80 KSI, bend formability of 1t/1t minimum, and stress relaxation of 65% at 150° C. after 1000 hours. Processing can be modified to increase formability at the expense of yield strength. Improvements to conductivity come from changes in chemistry as well as processing. The new chemistry-process optimization results in a low cost alloy of Cu-Sn-Ni-P-Mg.

IPC 8 full level

**C22C 9/02** (2006.01); **C22C 9/04** (2006.01); **C22F 1/08** (2006.01)

CPC (source: EP US)

**C22C 9/02** (2013.01 - EP US); **C22C 9/04** (2013.01 - EP US); **C22C 9/06** (2013.01 - EP US); **C22F 1/08** (2013.01 - EP US); **H01B 1/026** (2013.01 - EP US)

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA MK RS

DOCDB simple family (publication)

**US 2009098011 A1 20090416**; CA 2702358 A1 20090416; CN 101874122 A 20101027; EP 2215278 A1 20100811; EP 2215278 A4 20150902; JP 2011500963 A 20110106; JP 5752937 B2 20150722; MX 2010003995 A 20100930; TW 200934882 A 20090816; WO 2009049201 A1 20090416

DOCDB simple family (application)

**US 24953008 A 20081010**; CA 2702358 A 20081010; CN 200880113779 A 20081010; EP 08837615 A 20081010; JP 2010529100 A 20081010; MX 2010003995 A 20081010; TW 97139291 A 20081013; US 2008079573 W 20081010