Title (en)

Low energy plasma coating

Title (de)

Niedrigenergieplasma-Beschichtung

Title (fr)

Revêtement par plasma à faible énergie

Publication

EP 2775008 A1 20140910 (EN)

Application

EP 14157078 A 20140227

Priority

US 201313785286 A 20130305

Abstract (en)

A method of coating an aluminum alloy or magnesium alloy component, including cleaning and drying surfaces of the component to be coated; suspending a powdered coating material in a carrier gas and feeding the suspended powdered coating material through a plasma torch in a flowing gas; heating the coating material in the plasma torch to a molten or semi-molten state using a nominal power below 25kW; and depositing the coating material with the plasma torch directly on the surfaces to be coated. The component may be made of a magnesium alloy containing at one or more of zinc, cerium and zirconium, or of an aluminum alloy containing one or more of magnesium, silicon, copper and chromium. The powder material may be made in majority of aluminum.

IPC 8 full level

C23C 4/10 (2006.01); **C23C 4/12** (2006.01); **F01D 5/00** (2006.01)

CPC (source: EP US)

C23C 4/10 (2013.01 - EP US); **C23C 4/123** (2016.01 - EP US); **C23C 4/134** (2016.01 - EP US)

Citation (search report)

- [A] US 6221504 B1 20010424 - PFEFFINGER HARALD [DE], et al
- [XI] BAO M ET AL: "The Tribological Behavior of Plasma-Sprayed Al-Si Composite Coatings Reinforced with Nanodiamond", JOM, vol. 64, no. 6, 3 June 2012 (2012-06-03), The Minerals, Metals & Materials Society; Springer, Boston, MA [US], pages 702 - 708, XP035071455, ISSN: 1543-1851, DOI: 10.1007/S11837-012-0339-8
- [XI] GE Y ET AL: "Study on laser surface remelting of plasma-sprayed Al-Si/1wt% nano-Si3N4coating on AZ31B magnesium alloy", APPLIED SURFACE SCIENCE, vol. 273, 27 February 2013 (2013-02-27), Elsevier B.V., Amsterdam [NL], pages 122 - 127, XP028579364, ISSN: 0169-4332, DOI: 10.1016/J.APSUSC.2013.01.204
- [A] QIAN M ET AL: "Corrosion performance of laser-remelted Al-Si coating on magnesium alloy AZ91D", CORROSION SCIENCE, vol. 52, no. 10, 11 July 2010 (2010-07-11), Elsevier B.V., Amsterdam [NL], pages 3554 - 3560, XP027206825, ISSN: 0010-938X, [retrieved on 20100711], DOI: 10.1016/j.corsci.2010.07.010
- [A] PARDO A ET AL: "Corrosion behaviour of Mg-Al alloys with Al-11Si thermal spray coatings", MATERIALS AND CORROSION - WERKSTOFFE UND KORROSION, vol. 60, no. 12, 3 August 2009 (2009-08-03), Wiley-VCH, Weinheim [DE], pages 939 - 948, XP001552014, ISSN: 0947-5117, [retrieved on 20090803], DOI: 10.1002/MACO.200905348

Designated contracting state (EPC)

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

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2775008 A1 20140910; CA 2844019 A1 20140905; US 2014255613 A1 20140911

DOCDB simple family (application)

EP 14157078 A 20140227; CA 2844019 A 20140225; US 201313785286 A 20130305