

Title (en)
THERMAL SPRAYED PROTECTIVE LAYER FOR METALLIC SUBSTRATES

Title (de)
THERMISCHGESPRITZTE, GASDICHTE SCHUTZSCHICHT FÜR METALLISCHE SUBSTRATE

Title (fr)
REVÊTEMENT PROTECTEUR PAR PROJECTION THERMIQUE POUR DES SUBSTRATS MÉTALLIQUES

Publication
EP 2006410 B1 20190403 (DE)

Application
EP 08007173 A 20080411

Priority
DE 102007028109 A 20070619

Abstract (en)
[origin: EP2006410A2] A thermally sprayed, gastight protective layer for metal substrates, especially those based on iron, nickel, aluminum, magnesium and/or titanium, comprises spray powder containing at least two components, of which the first is a silicate mineral or rock, and the second is a metal powder and/or a further silicate mineral or rock. The silicate mineral or rock component in the spray powder has an alkali content of less than 6 wt.%. A thermally sprayed, gastight protective layer for metal substrates, especially those based on iron (Fe), nickel (Ni), aluminum (Al), magnesium (Mg) and/or titanium (Ti) comprises spray powder containing at least two components, of which the first is a silicate mineral or rock, and the second is a metal powder and/or a further silicate mineral or rock. The silicate mineral or rock component in the spray powder has an alkali content of less than 6 wt.%. The silicate component of the spray powder comprises natural or synthetically produced minerals or rocks. The spray powder is composed of three components, namely of a first and a second silicate mineral or rock and of a metal powder. The spray powder contains a content of at least 10 wt.% of a silicate component having a content of greater than 99% of silica (SiO₂). The protective layer has a thermal conductivity of 0.8-5 W/mK, and a layer thickness of 100-2500 µm. Independent claims are included for the following: (1) a spray powder composed of at least two components for production of a protective layer; and (2) production of the protective layer involves application of the protective layer on the metal substrate using flame spraying, high-velocity oxygen-fuel flame spraying (HVOF) or plasma spraying, where the coefficients of thermal expansion of layer and substrate are adapted during application of the protective layer by controlled partial devitrification of the mineral components of the spray powder.

IPC 8 full level
C23C 4/134 (2016.01); **C23C 4/129** (2016.01)

CPC (source: EP KR US)
C23C 4/067 (2016.01 - EP US); **C23C 4/08** (2013.01 - KR); **C23C 4/10** (2013.01 - EP KR US); **C23C 4/11** (2016.01 - EP US); **C23C 4/129** (2016.01 - EP US); **C23C 4/134** (2016.01 - EP US); **Y10T 428/12611** (2015.01 - EP US); **Y10T 428/12618** (2015.01 - EP US)

Citation (examination)
EP 1141437 B1 20031001 - FORSCHUNGSZENTRUM JUELICH GMBH [DE]

Cited by
WO2013075769A1; DE102011119087B3; WO2016096902A3; DE102013211681A1; WO2014202263A1

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

DOCDB simple family (publication)
EP 2006410 A2 20081224; **EP 2006410 A3 20100901**; **EP 2006410 B1 20190403**; CN 101328569 A 20081224; CN 101328569 B 20150812; DE 102007028109 A1 20081224; JP 2009001903 A 20090108; JP 5296421 B2 20130925; KR 20080112099 A 20081224; US 2008317966 A1 20081225; US 2014302299 A1 20141009; US 8784979 B2 20140722

DOCDB simple family (application)
EP 08007173 A 20080411; CN 200810096440 A 20080509; DE 102007028109 A 20070619; JP 2008159801 A 20080618; KR 20080043973 A 20080513; US 12987208 A 20080530; US 201414310411 A 20140620