

Title (en)
Device and method for creating a coating system

Title (de)
Vorrichtung und Verfahren zur Erzeugung eines Schichtsystems

Title (fr)
Dispositif et procédé destinés à la production d'un système de couches

Publication
EP 2711441 B1 20170802 (DE)

Application
EP 13184028 A 20130912

Priority
DE 102012108919 A 20120921

Abstract (en)
[origin: EP2711441A1] A coating apparatus (10) for coating substrate (12) comprises plasma generator for generating plasma jet (22), which exits from coating head of generator; first particle reservoir (14) connected with transport pipe (24) for supplying particles stored in reservoir to jet; second particle reservoir to supply particles from reservoir via pipe to jet in particle mixture with particles from first reservoir; and supply control device (18) for setting amount of particles fed from first reservoir into pipe relative to amount of particles fed from second reservoir into pipe. A coating apparatus (10) for coating a substrate (12) comprises: a plasma generator for generating a plasma jet (22), which exits from a coating head of the plasma generator; a first particle reservoir (14) connected with a transport pipe (24) for supplying particles stored in the first particle reservoir to the plasma jet; at least a second particle reservoir provided and configured to supply particles from the second reservoir via the transport pipe to the plasma jet in a particle mixture with the particles from the first particle reservoir; and a supply control device (18) for setting an amount of the particles fed from the first particle reservoir into the transport pipe relative to the amount of the particles fed from the second particle reservoir into the transport pipe. In the apparatus, a controller (28) is provided for controlling the amount of particle mixture supplied to the plasma jet. At least one separate process gas (30) is provided to be mixed with the particles from one of the particle reservoirs in order to form a fluidized powder. The coating apparatus has at least a second coating head and at least a further particle supply unit corresponding to the second coating head, where the further particle supply unit has a particle reservoir, a corresponding process gas and a process gas control unit. An independent claim is included for method for coating a substrate involving: generating a plasma jet with a plasma generator having at least one coating head from which the plasma jet exits; feeding particles from at least a first particle reservoir and from at least a second particle reservoir via a transport pipe to a supply control device in which they are mixed; supplying a particle mixture of particles from the first particle reservoir and of particles from the second particle reservoir from the supply control device to the plasma jet via the transport pipe; and directing the plasma jet together with the particle mixture onto a surface of the substrate in order to form the coating; or generating a plasma jet with a plasma generator of a coating apparatus, where the plasma jet exits from a coating head; supplying particles from a first particle reservoir via transport pipe to the plasma jet at a first supply location; and supplying particles from a second particle reservoir to the plasma jet at a second supply location, where the position of the first supply location and the position of the second supply location relative to the plasma jet are chosen in such a way that on the substrate a first layer with particles from the first particle reservoir and a second layer with particles from the second particle reservoir or a gradient layer or a compound layer is formed. The fraction of particles from the first particle reservoir in the particle mixture is set at 10% to 90%, and the fraction of particles from the second particle reservoir in the particle mixture is set at 10% to 90%.

IPC 8 full level
C23C 4/134 (2016.01); **B05B 7/22** (2006.01); **B05B 12/14** (2006.01); **C23C 4/01** (2016.01)

CPC (source: EP US)
B05B 7/226 (2013.01 - EP US); **B05B 12/1418** (2013.01 - EP US); **C23C 4/01** (2016.01 - EP US); **C23C 4/134** (2016.01 - EP US)

Cited by
CN107367962A; WO2022161616A1

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

DOCDB simple family (publication)
EP 2711441 A1 20140326; **EP 2711441 B1 20170802**; DE 102012108919 A1 20140515; DE 102012108919 A9 20141023; ES 2641835 T3 20171114; US 2014087084 A1 20140327

DOCDB simple family (application)
EP 13184028 A 20130912; DE 102012108919 A 20120921; ES 13184028 T 20130912; US 201314032408 A 20130920