

Title (en)
HARD METAL OR CERMET BODY AND METHOD FOR PRODUCING THE SAME

Title (de)
HARTMETALL- ODER CERMETKÖRPER UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)
CORPS EN METAL DUR OU EN CERMET ET PROCEDE DE FABRICATION

Publication
EP 1664363 A1 20060607 (DE)

Application
EP 04732930 A 20040514

Priority
• DE 2004001016 W 20040514
• DE 10342364 A 20030912

Abstract (en)
[origin: WO2005026400A1] The invention relates to a hard metal or cermet body comprising a single or several adjoining surfaces. A first layer with a thickness of between 2-100 μm is located beneath the single surface or at least one of the surfaces, said layer comprising an auxiliary metal fraction of between 2 and 25 mass % and up to 25 volume % nitrides or carbonitrides of one or more metals of the IVa group of the periodic table and/or up to 10 volume % carbides and/or carbonitrides of the elements V, Nb, Ta and/or Cr, with WC making up the residual amount. A second layer with a thickness of between 2 and 40 μm is located beneath the first layer, said second layer having a higher nitrogen fraction than the first layer and consisting essentially of nitrides and/or carbonitrides of metals of the IVa group of the periodic table, in addition to containing phase fractions of up to 10 volume % of carbides, nitrides, carbonitrides or oxycarbonitrides of the elements W, Mo, V, Ta, Nb, Cr and/or fractions that are dissolved in the hard substance phase amounting to up to 5 mass % V, Nb, Ta and up to 2 mass % Cr, Mo, W and also containing up to 15 mass % binding agents. A transition zone with a thickness of between 2 and 100 μm is located beneath the second layer, the composition changing gradually to a homogeneous composition in the interior core of the hard metal or cermet body in said zone. To produce said sequence of layers, after being subjected to thermal treatment to produce a layer rich in an auxiliary metal, the body is treated in a nitrogen atmosphere under a nitrogen pressure of 5×10^{-3} Pa to 10^{-7} Pa below the eutectic.

IPC 1-7
C22C 29/00; **C21D 1/34**

IPC 8 full level
B22F 3/10 (2006.01); **C22C 1/05** (2006.01); **C23C 30/00** (2006.01); **C21D 1/76** (2006.01)

CPC (source: EP US)
B22F 3/101 (2013.01 - EP US); **C22C 1/051** (2013.01 - EP US); **C23C 30/005** (2013.01 - EP US); **C21D 1/76** (2013.01 - EP US); **Y10T 428/24975** (2015.01 - EP US); **Y10T 428/265** (2015.01 - EP US)

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
WO 2005026400 A1 20050324; AT E478969 T1 20100915; CN 100439535 C 20081203; CN 1820089 A 20060816; DE 10342364 A1 20050414; DE 502004011588 D1 20101007; EP 1664363 A1 20060607; EP 1664363 B1 20100825; JP 2007505212 A 20070308; PL 1664363 T3 20110228; US 2007042222 A1 20070222; US 7544410 B2 20090609

DOCDB simple family (application)
DE 2004001016 W 20040514; AT 04732930 T 20040514; CN 200480017007 A 20040514; DE 10342364 A 20030912; DE 502004011588 T 20040514; EP 04732930 A 20040514; JP 2006525609 A 20040514; PL 04732930 T 20040514; US 57200004 A 20040514