

Title (en)

COMPOSITE METAL PRODUCT AND METHOD FOR THE MANUFACTURING OF SUCH A PRODUCT

Title (de)

VERBUNDMETALLPRODUKT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

PRODUIT METALLIQUE COMPOSITE ET SON PROCEDE DE PRODUCTION

Publication

EP 1570096 A1 20050907 (EN)

Application

EP 03812741 A 20031209

Priority

- SE 0301908 W 20031209
- SE 0203668 A 20021212

Abstract (en)

[origin: WO2004053178A1] The invention concerns a composite metal product, which contains 30-90 vol-% of a hard phase in the form of particles of substantially M(C,N)-carbonitride or M(C,N,O)-carbonitrideoxide, commonly referred to as hard phase of MX-type, where M to at least 50 atomic-% consists of titanium, which particles are essentially homogenously distributed in a matrix consisting of a hardenable steel, and wherein the atomic-% ratio between C and N shall satisfy the condition $0.1 < \text{(formula I)} < 0.7$. At the manufacturing of the product, a powder mixture, which contains powder of titanium carbide, titanium nitride, and/or titanium carbonitride in such an amount that its content of titanium atoms correspond to at least 50 % of the metal atoms in said hard phase of MX-type in the final metal product, and at least the main part of other constituents of the final metal product, is milled together. A green body is formed of the milled product, and the green body is subjected to liquid phase sintering at a temperature of 1350-1600 °C and subsequently cooled, causing the liquid phase to solidify, wherein, during said liquid phase sintering and subsequent cooling, said hard phase particles of MX-type obtain their final composition and size.

IPC 1-7

C22C 29/04

IPC 8 full level

C22C 29/04 (2006.01); **C23C 16/46** (2006.01)

CPC (source: EP US)

C22C 29/04 (2013.01 - EP US); **B22F 2005/001** (2013.01 - EP US); **B22F 2009/041** (2013.01 - EP US); **B22F 2998/00** (2013.01 - EP US); **B22F 2998/10** (2013.01 - EP US)

Citation (search report)

See references of WO 2004053178A1

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 PT RO SE SI SK TR

DOCDB simple family (publication)

WO 2004053178 A1 20040624; AU 2003302772 A1 20040630; EP 1570096 A1 20050907; JP 2006509908 A 20060323; SE 0203668 D0 20021212; SE 0203668 L 20040613; SE 524583 C2 20040831; US 2006048603 A1 20060309

DOCDB simple family (application)

SE 0301908 W 20031209; AU 2003302772 A 20031209; EP 03812741 A 20031209; JP 2004558962 A 20031209; SE 0203668 A 20021212; US 53260305 A 20050901