

Title (en)

WEAR PROTECTION LAYER FOR PISTON RINGS, CONTAINING WOLFRAM CARBIDE AND CHROMIUM CARBIDE

Title (de)

VERSCHLEISSCHUTZSCHICHT FÜR KOLBENRINGE ENTHALTEND WOLFRAMKARBID UND CHROMKARBID

Title (fr)

COUCHE D'USURE POUR SEGMENTS DE PISTON RENFERMANT DU CARBURE DE TUNGSTENE ET DU CARBURE DE CHROME

Publication

EP 1341946 A1 20030910 (DE)

Application

EP 01270182 A 20011117

Priority

- DE 0104336 W 20011117
- DE 10061750 A 20001212

Abstract (en)

[origin: WO0248422A1] The invention relates to a wear protection layer for piston rings in internal combustion engines, consisting essentially of chromium carbides, wolfram carbide, chromium and nickel. The wear protection layer is formed from a mixture of powders in which the first powder consists of at least the alloy components chromium carbide, chromium and nickel, in the form of an agglomerated and sintered powder, and which has not been subjected to any secondary heat treatment that would make the powder brittle, such as plasma refinement, the carbides in the powder having an average diameter of essentially not more than 3 um. A second powder, also in the form of an agglomerated and sintered powder, contains wolfram carbide and is applied to at least one peripheral surface of the piston rings by thermal injection, so that two distinctive coating areas are produced in the wear protection layer. A first area, predominantly rich in chromium, and a second area, mainly rich in wolfram carbide are formed.

IPC 1-7

C23C 4/06; **C23C 30/00**

IPC 8 full level

F02F 5/00 (2006.01); **C23C 4/04** (2006.01); **C23C 4/06** (2016.01); **C23C 30/00** (2006.01); **F16J 9/26** (2006.01)

CPC (source: EP US)

C23C 4/06 (2013.01 - EP US); **C23C 30/00** (2013.01 - EP US); **Y10T 428/12181** (2015.01 - EP US); **Y10T 428/12486** (2015.01 - EP US); **Y10T 428/1284** (2015.01 - EP US); **Y10T 428/12847** (2015.01 - EP US)

Citation (search report)

See references of WO 0248422A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

WO 0248422 A1 20020620; AT E275212 T1 20040915; BR 0116079 A 20031216; BR 0116079 B1 20110405; DE 10061750 A1 20020620; DE 10061750 B4 20041021; DE 50103494 D1 20041007; EP 1341946 A1 20030910; EP 1341946 B1 20040901; JP 2004514795 A 20040520; JP 4394349 B2 20100106; US 2004069141 A1 20040415; US 7001670 B2 20060221

DOCDB simple family (application)

DE 0104336 W 20011117; AT 01270182 T 20011117; BR 0116079 A 20011117; DE 10061750 A 20001212; DE 50103494 T 20011117; EP 01270182 A 20011117; JP 2002550133 A 20011117; US 45022003 A 20031204