

Title (en)
Hard metal and process for its manufacture.

Title (de)
Hartmetall und Verfahren zu seiner Herstellung.

Title (fr)
Métal dur et son procédé de fabrication.

Publication
EP 0195965 A2 19861001 (DE)

Application
EP 86102983 A 19860306

Priority
DE 3511220 A 19850328

Abstract (en)
[origin: US4684405A] A sintered tungsten carbide material and method for manufacturing same in which the method includes the steps of combining metal particles composed of from 75 to 95 percent by weight of a composition containing at least 70 percent by weight of tungsten carbide and from 5 to 25 percent by weight of a binder metal composition, the binder metal composition consisting essentially of from 5 to 15 percent by weight of chromium and from 85 to 95 percent by weight of nickel; pressing the metal particles into a pressed body; sintering the pressed body in a sintering chamber for a period ranging from 20 to 200 minutes, at a temperature ranging from 1400 DEG to 1500 DEG C., and in a protective atmosphere which is one of a vacuum, a noble gas, a mixture of noble gases, and hydrogen gas to form a sintered body; and treating the sintered body for a period ranging from 20 to 200 minutes, at a temperature ranging from 1300 DEG to 1400 DEG C., at a pressure ranging from 20 to 3000 bar, and in a noble gas atmosphere. The pressure/temperature treatment step densifies the sintered composition and results in an unexpectedly stronger and tougher sintered metal.

Abstract (de)
Es wird ein Hartmetall beschrieben, dessen Hartstoffphase aus Wolframcarbid und dessen Bindemetallphase aus Nickel und Chrom besteht und das aus pulverförmigen Rohstoffen durch Pressen und Sintern hergestellt ist, wobei das Hartmetall neben der Hartstoffphase 5 bis 25 Gew.% Bindemetallphase enthält, die aus 5 bis 15 Gew.% Chrom und Rest Nikkel zusammengesetzt ist, und wobei das Hartmetall nach dem Sintern während einer Zeit von 20 bis 200 Minuten in einer Edelgasatmosphäre, vorzugsweise einer Argonatmosphäre, bei einer Temperatur von 1300 bis 1400 °C und einem Druck von 20 bis 3000 bar behandelt wird.

IPC 1-7
B22F 3/14; C22C 29/08

IPC 8 full level
C22C 1/05 (2006.01); **B22F 3/14** (2006.01); **C22C 29/06** (2006.01); **C22C 29/08** (2006.01)

CPC (source: EP US)
C22C 29/067 (2013.01 - EP US); **C22C 29/08** (2013.01 - EP US); **B22F 2998/10** (2013.01 - EP US)

Citation (applicant)
US 3215510 A 19651102 - KELLY FREDERICK J, et al

Cited by
US5223020A; EP0385316A3; US6241799B1; WO9005200A1; WO9213112A1

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AT FR GB

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EP 0195965 A2 19861001; EP 0195965 A3 19880921; EP 0195965 B1 19900912; AT E56483 T1 19900915; DE 3511220 A1 19861009; DE 3511220 C2 19890907; JP S61227147 A 19861009; US 4684405 A 19870804

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