

Title (en)
HARD METAL AND PROCESS FOR ITS MANUFACTURE

Publication
EP 0195965 A3 19880921 (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.

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C22C 29/08; **B22F 3/14**

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

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Citation (search report)

- [YD] US 3215510 A 19651102 - KELLY FREDERICK J, et al
- [Y] FR 2036654 A5 19701224 - ASEA AB
- [A] FR 2387720 A1 19781117 - KRUPP GMBH [DE]
- [A] GB 516734 A 19400110 - FAY HENRY WILLEY
- [AD] R. KIEFFER et al.: "Hartmetalle", 1965, Seiten 221,228-229, Springer-Verlag, Wien, AT

Cited by
US5223020A; EP0385316A3; US6241799B1; WO9005200A1; WO9213112A1

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