

Title (en)

Sulfur-containing powder-metallurgy tool steel article and its method of manufacture

Title (de)

Artikel aus Schwefel enthaltenden Werkzeugstahlpulver und Verfahren zu seiner Herstellung

Title (fr)

Article en poudre d'acier à outils contenant du soufre et son procédé de fabrication

Publication

EP 0648851 B1 19990714 (EN)

Application

EP 94306632 A 19940909

Priority

US 12656293 A 19930927

Abstract (en)

[origin: EP0648851A1] A powder-metallurgy produced tool steel article of a hot worked, fully dense, consolidated mass of prealloyed particles of a tool steel alloy having a sulfur content within the range of 0.10 to 0.30 weight percent and a maximum sulfide size below about 15 microns. <IMAGE> <IMAGE>

IPC 1-7

C22C 33/02; C22C 38/60; B22F 9/08

IPC 8 full level

A63B 21/04 (2006.01); **A63B 22/04** (2006.01); **A63B 23/035** (2006.01); **A63B 23/04** (2006.01); **B22F 3/16** (2006.01); **C22C 33/02** (2006.01); **C22C 38/00** (2006.01); **C22C 38/24** (2006.01); **C22C 38/60** (2006.01); **H03G 3/30** (2006.01); **H04L 1/02** (2006.01); **H04L 27/08** (2006.01); **A63B 21/00** (2006.01); **A63B 21/005** (2006.01)

CPC (source: EP)

A63B 21/00178 (2013.01); **A63B 21/00181** (2013.01); **A63B 21/4047** (2015.10); **A63B 22/0012** (2013.01); **A63B 22/203** (2013.01); **A63B 23/0417** (2013.01); **B22F 9/082** (2013.01); **C22C 33/0257** (2013.01); **A63B 21/0058** (2013.01); **A63B 22/0015** (2013.01); **A63B 22/0023** (2013.01); **A63B 23/03575** (2013.01); **A63B 2202/206** (2013.01); **A63B 2071/025** (2013.01); **B22F 2201/02** (2013.01); **B22F 2998/00** (2013.01); **B22F 2998/10** (2013.01); **B22F 2999/00** (2013.01)

Cited by

AT411580B; EP0773305A1; US7682417B2; EP1471160A1; KR100433161B1

Designated contracting state (EPC)

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

DOCDB simple family (publication)

EP 0648851 A1 19950419; EP 0648851 B1 19990714; AT E182183 T1 19990715; CA 2131652 A1 19950328; CA 2131652 C 20040601; DE 69419474 D1 19990819; DE 69419474 T2 20000316; DK 0648851 T3 19991129; ES 2135544 T3 19991101; GR 3031225 T3 19991231; JP H07179908 A 19950718

DOCDB simple family (application)

EP 94306632 A 19940909; AT 94306632 T 19940909; CA 2131652 A 19940908; DE 69419474 T 19940909; DK 94306632 T 19940909; ES 94306632 T 19940909; GR 990402316 T 19990916; JP 25412494 A 19940926