

Title (en)

STABILIZED GRAIN SIZE REFRACTORY METAL POWDER METALLURGY MILL PRODUCTS

Title (de)

WALZGUT STABILISIERTER KORNGRÖSSE AUS REFRAKTÄRMETALLPULVER

Title (fr)

METALLURGIE DES POUDRES : PRODUITS DE BROUAGE DE METAUX REFRACTAIRES A TAILLE DE GRAINS STABILISEE

Publication

EP 1506322 A2 20050216 (EN)

Application

EP 03705856 A 20030121

Priority

- US 0301823 W 20030121
- US 35114602 P 20020123

Abstract (en)

[origin: WO03062482A2] A powder metal P/M mill product and the method of fabrication such product made out of low oxygen <400 ppm refractory metal, or alloys thereof, using oxide additive such as MgO, SiO₂, and Y₂O₃ for co-fabrication to achieve refractory metal grain size stabilization as required in high temperature applications. One such product is a sheet with small grain size containing oxide particles as grain size stabilizers. The product has good mechanical properties, low oxygen content in refractory metal fiber derivatives of the powder within the mill product and if is available as large pieces of sheet lateral dimensions. The metal powder is consolidated to a sheet bar by different methods, which may weigh 50 pounds or more.

[origin: WO03062482A2] A powder metal (P/M) mill product and the method of fabrication such product made out of low oxygen (<400 ppm) refractory metal, or alloys thereof, using oxide additive (such as MgO, SiO₂, and Y₂O₃) for co-fabrication to achieve refractory metal grain size stabilization as required in high temperature applications. One such product is a sheet with small grain size containing oxide particles as grain size stabilizers. The product has good mechanical properties, low oxygen content in refractory metal fiber derivatives of the powder within the mill product and if is available as large pieces of sheet (lateral dimensions). The metal powder is consolidated to a sheet bar by different methods, which may weigh 50 pounds or more.

IPC 1-7

C22C 32/00

IPC 8 full level

B22F 3/10 (2006.01); **B22F 1/00** (2022.01); **B22F 1/145** (2022.01); **B22F 3/20** (2006.01); **B22F 3/24** (2006.01); **C22C 32/00** (2006.01)

CPC (source: EP KR US)

B22F 1/00 (2013.01 - EP KR US); **B22F 1/145** (2022.01 - EP KR US); **B22F 3/1003** (2013.01 - EP KR US); **C22C 32/0031** (2013.01 - EP KR US); **B22F 2003/1032** (2013.01 - EP KR US); **B22F 2005/002** (2013.01 - EP KR US); **B22F 2998/00** (2013.01 - EP KR US); **B22F 2998/10** (2013.01 - EP KR US)

Citation (search report)

See references of WO 03062482A2

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 SE SI SK TR

DOCDB simple family (publication)

WO 03062482 A2 20030731; **WO 03062482 A3 20040226**; BR 0307073 A 20041228; CA 2473493 A1 20030731; CN 1623005 A 20050601; EP 1506322 A2 20050216; IL 162904 A0 20051120; JP 2005516116 A 20050602; KR 20040091627 A 20041028; MX PA04007104 A 20041029; NZ 534212 A 20060428; PL 371625 A1 20050627; RS 64904 A 20061027; RU 2004125856 A 20050610; TW 200307583 A 20031216; TW I262109 B 20060921; US 2005118052 A1 20050602; ZA 200405764 B 20050720

DOCDB simple family (application)

US 0301823 W 20030121; BR 0307073 A 20030121; CA 2473493 A 20030121; CN 03802646 A 20030121; EP 03705856 A 20030121; IL 16290403 A 20030121; JP 2003562348 A 20030121; KR 20047011314 A 20030121; MX PA04007104 A 20030121; NZ 53421203 A 20030121; PL 37162503 A 20030121; RU 2004125856 A 20030121; TW 92101288 A 20030122; US 50228104 A 20040719; YU P64904 A 20030121; ZA 200405764 A 20040720