

Title (en)

CARBURIZATION-RESISTANT METAL MATERIAL

Title (de)

AUFKOHHLUNGSRESISTENTES METALLMATERIAL

Title (fr)

MATÉRIAU MÉTALLIQUE RÉSISTANT À LA CÉMENTATION PAR DU CARBONE

Publication

**EP 2246454 A4 20140122 (EN)**

Application

**EP 09715929 A 20090223**

Priority

- JP 2009053212 W 20090223
- JP 2008046228 A 20080227

Abstract (en)

[origin: US2010034690A1] There is provided a metal material having excellent workability and metal dusting resistance, which is suitable as a raw material for cracking furnaces, reforming furnaces, heating furnaces, heat exchangers, etc. in petroleum refining, petrochemical plants, and the like. The metal material is characterized by consisting of, by mass %, C: 0.08 to 0.4%, Si: 0.6 to 2.0%, Mn: 0.05 to 2.5%, P: 0.04% or less, S: 0.015% or less, Cr: 18 to 30%, Ni: 20% or higher and less than 30%, Cu: 0.5 to 10.0%, Al: 0.01 to 1%, Ti: 0.01 to 1%, N: 0.15% or less, and O (oxygen): 0.02% or less, the balance being Fe and impurities, and satisfying Expression (1).  $C \geq 0.062xSi + 0.033xCu - 0.004xCr + 0.043$  (1) in which the symbol of element in Expression (1) represents the content of that element in mass %.

IPC 8 full level

**C22C 38/00** (2006.01); **C22C 38/58** (2006.01)

CPC (source: EP KR US)

**C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/34** (2013.01 - KR); **C22C 38/42** (2013.01 - EP KR US); **C22C 38/50** (2013.01 - EP KR US); **C22C 38/58** (2013.01 - KR)

Citation (search report)

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- [A] EP 1420077 A1 20040519 - BOEHLER EDELSTAHL GMBH & CO KG [AT]
- [A] US 4556423 A 19851203 - KONDO TATSUO [JP], et al
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- [A] NISHIYAMA Y ET AL: "Metal dusting behaviour of Cr-Ni steels and Ni-base alloys in a simulated syngas mixture", CORROSION SCIENCE, OXFORD, GB, vol. 48, no. 8, 1 August 2006 (2006-08-01), pages 2064 - 2083, XP028025748, ISSN: 0010-938X, [retrieved on 20060801], DOI: 10.1016/J.CORSCI.2005.08.008
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Designated contracting state (EPC)

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**US 2010034690 A1 20100211**; CA 2711415 A1 20090903; CA 2711415 C 20121030; CN 101946016 A 20110112; CN 101946016 B 20121031; DK 2246454 T3 20151005; EP 2246454 A1 20101103; EP 2246454 A4 20140122; EP 2246454 B1 20150715; ES 2545488 T3 20150911; JP 4329883 B1 20090909; JP WO2009107585 A1 20110630; KR 101210113 B1 20121207; KR 20100092498 A 20100820; WO 2009107585 A1 20090903

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