Title (en)

CARBURIZATION-RESISTANT METAL MATERIAL

Title (de)

AUFKOHLUNGSRESISTENTES METALLMATERIAL

Title (fr)

MATÉRIAU MÉTALLIQUE RÉSISTANT À LA CÉMENTATION PAR DU CARBONE

Publication

EP 2246454 B1 20150715 (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>=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)

Cited by

CN105401084A; RU2614973C1; EP2725112A4; US10233523B2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR

DOCDB simple family (publication)

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

DOCDB simple family (application)

US 53906509 A 20090811; CA 2711415 A 20090223; CN 200980105444 A 20090223; DK 09715929 T 20090223; EP 09715929 A 20090223; ES 09715929 T 20090223; JP 2009053212 W 20090223; JP 2009508031 A 20090223; KR 20107014706 A 20090223