

Title (en)

HOT-ROLLED STEEL PLATE FOR HIGH-STRENGTH LINE PIPE

Title (de)

WARMGEWALZTES STAHLBLECH FÜR HOCHFESTE LEITUNGSROHRE

Title (fr)

PLAQUE D'ACIER LAMINÉE À CHAUD DESTINÉE À UN TUYAU DE CANALISATION À HAUTE RÉSISTANCE

Publication

EP 2927339 A4 20151216 (EN)

Application

EP 14743980 A 20140123

Priority

- JP 2013010976 A 20130124
- JP 2014000320 W 20140123

Abstract (en)

[origin: EP2927339A1] Provided is an electric resistance welded steel pipe for a high strength linepipe excellent in terms of HIC resistance. A hot-rolled steel sheet for a high strength linepipe, the steel sheet having a chemical composition containing, by mass%, C: 0.02% or more and 0.06% or less, Si: 0.05% or more and 0.25% or less, Mn: 0.60% or more and 1.10% or less, P: 0.008% or less, S: 0.0010% or less, Nb: 0.010% or more and 0.060% or less, Ti: 0.001% or more and 0.020% or less, Mo: 0.05% or less, Cr: 0.05% or more and 0.50% or less, Al: 0.01% or more and 0.08% or less, Ca: 0.0005% or more and 0.0050% or less, O: 0.005% or less, one or more selected from among Cu: 0.50% or less, Ni: 0.50% or less, and V: 0.10% or less, and the balance being Fe and inevitable impurities, and a metallic structure composed of bainitic-ferrite, in which expression (1) below is satisfied, and in which the ratio of the hardness of a center segregation part to the hardness of a non-segregation part is less than 1.20. $SP \leq 1.90$ where SP is derived from $SP = Mn + Mo + 11.3 \times C + 0.29 \times (Cu + Ni) + 0.60 \times Cr + 0.88 \times V$, and where atomic symbols in the equation respectively represent the contents (mass%) of the corresponding chemical elements.

IPC 8 full level

C21D 8/02 (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/20** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/28** (2006.01); **C22C 38/42** (2006.01); **C22C 38/44** (2006.01); **C22C 38/46** (2006.01); **C22C 38/48** (2006.01); **C22C 38/50** (2006.01)

CPC (source: EP US)

C21D 8/0205 (2013.01 - EP US); **C21D 8/0226** (2013.01 - EP US); **C21D 8/0263** (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **C22C 38/00** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/20** (2013.01 - EP US); **C22C 38/22** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/26** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/42** (2013.01 - EP US); **C22C 38/44** (2013.01 - EP US); **C22C 38/46** (2013.01 - EP US); **C22C 38/48** (2013.01 - EP US); **C22C 38/50** (2013.01 - EP US); **C21D 2211/004** (2013.01 - EP US); **C21D 2211/005** (2013.01 - EP US)

Citation (search report)

- [X] US 2012018056 A1 20120126 - NAKAGAWA KINYA [JP], et al
- [A] JP 2003286545 A 20031010 - NIPPON KOSHUHA STEEL CO LTD
- [A] JP H04272156 A 19920928 - KOBE STEEL LTD
- See references of WO 2014115549A1

Designated contracting state (EPC)

AL 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 RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2927339 A1 20151007; **EP 2927339 A4 20151216**; **EP 2927339 B1 20161102**; CN 104937125 A 20150923; CN 104937125 B 20180109; JP 5884202 B2 20160315; JP WO2014115549 A1 20170126; KR 101718267 B1 20170320; KR 20150087424 A 20150729; US 2015368736 A1 20151224; WO 2014115549 A1 20140731

DOCDB simple family (application)

EP 14743980 A 20140123; CN 201480005063 A 20140123; JP 2014000320 W 20140123; JP 2014558503 A 20140123; KR 20157017737 A 20140123; US 201414763403 A 20140123