

Title (en)

FERRITIC STAINLESS STEEL EXCELLENT IN HEAT RESISTANCE AND WORKABILITY

Title (de)

FERRITISCHER EDELSTAHL MIT HERVORRAGENDER HITZERESISTENZ UND VERARBEITBARKEIT

Title (fr)

ACIER INOXYDABLE FERRITIQUE EXCELLENT EN TERMES DE RÉSISTANCE À LA CHALEUR ET D'APTITUDE AU FAÇONNAGE

Publication

**EP 2628814 A4 20150121 (EN)**

Application

**EP 11832650 A 20111012**

Priority

- JP 2011221763 A 20111006
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- JP 2011073980 W 20111012

Abstract (en)

[origin: US2013183190A1] An object is to provide ferritic stainless steel excellent in heat resistance (oxidation resistance, a thermal fatigue property and a high-temperature fatigue property) and formability, while preventing a decrease in oxidation resistance due to Cu, without adding expensive chemical elements such as Mo and W. Specifically, ferritic stainless steel having a chemical composition containing, by mass %, C: 0.015% or less, Si: 0.4% or more and 1.0% or less, Mn: 1.0% or less, P: 0.040% or less, S: 0.010% or less, Cr: 12% or more and less than 16%, N: 0.015% or less, Nb: 0.3% or more and 0.65% or less, Ti: 0.15% or less, Mo: 0.1% or less, W: 0.1% or less, Cu: 1.0% or more and 2.5% or less and Al: 0.2% or more and 1.0% or less, while the relationship  $Si \geq Al$  is satisfied, and the balance being Fe and inevitable impurities.

IPC 8 full level

**C21D 6/00** (2006.01); **C21D 8/02** (2006.01); **C21D 9/46** (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 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/28** (2006.01); **C22C 38/30** (2006.01); **C22C 38/40** (2006.01)

CPC (source: EP KR US)

**C21D 6/002** (2013.01 - EP US); **C21D 8/0226** (2013.01 - EP KR US); **C21D 8/0236** (2013.01 - EP KR US); **C21D 8/0273** (2013.01 - EP KR US); **C21D 9/46** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP KR US); **C22C 38/004** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP KR US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/20** (2013.01 - EP KR US); **C22C 38/22** (2013.01 - EP KR US); **C22C 38/24** (2013.01 - EP US); **C22C 38/26** (2013.01 - EP KR US); **C22C 38/28** (2013.01 - EP KR US); **C22C 38/30** (2013.01 - EP US); **C22C 38/40** (2013.01 - EP US); **F01N 13/16** (2013.01 - US); **C21D 2211/005** (2013.01 - EP US)

Citation (search report)

- [X] US 2008279712 A1 20081113 - OKU MANABU [JP], et al
- [A] JP 2010053421 A 20100311 - JFE STEEL CORP
- [A] WO 2009110641 A1 20090911 - JFE STEEL CORP [JP], et al
- [A] EP 1930461 A1 20080611 - NISSHIN STEEL CO LTD [JP]
- [A] EP 2112245 A1 20091028 - NISSHIN STEEL CO LTD [JP]
- [A] JP 2003160842 A 20030606 - NISSHIN STEEL CO LTD
- See references of WO 2012050226A1

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