

Title (en)
STEEL SHEET FOR CANS, HOT-ROLLED STEEL SHEET TO BE USED AS THE BASE METAL AND PROCESSES FOR PRODUCTION OF BOTH

Title (de)
STAHLBLECH FÜR DOSEN, HEISSGEWALZTES STAHLBLECH ZUR VERWENDUNG ALS BASISMETALL UND HERSTELLUNGSVERFAHREN FÜR BEIDE

Title (fr)
TÔLE D'ACIER POUR BOÎTES DE CONSERVE, TÔLE D'ACIER LAMINÉ À CHAUD À UTILISER COMME MÉTAL DE BASE ET PROCÉDÉS DE FABRICATION DES DEUX TYPES DE TÔLE

Publication
EP 2128289 B1 20160810 (EN)

Application
EP 08712121 A 20080222

Priority
• JP 2008053589 W 20080222
• JP 2007049652 A 20070228

Abstract (en)
[origin: EP2128289A1] In order to manufacture a tin mill black plate, 0.01 to 0.12% of C, 0.005 to 0.5% of Si, 0.3 to 1.5% of Mn, 0.005 to 0.2% of P, 0.10% or less of Al, 0.012% or less of N, and 0.005 to 0.10% of Nb are contained, and solution hardening, precipitation hardening, and grain refining hardening are combined to obtain a black plate having a substantially ferrite single-phase microstructure having an average grain size of 7 µm or less and properties after baking after lacquering, such as a yield point strength of 500 MPa or more, a yield ratio of 0.9 or more, a total elongation of 10% or more, and #r of -0.50 to 0. In particular, hot rolling conditions include FT of 870°C or higher, a cooling rate after hot rolling of 40 °C/s or less, and CT of 620°C or higher, and the average crystal grain size of a hot-rolled steel sheet used as a rolling raw material for the tin mill black plate is 6 µm or more.

IPC 8 full level
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Citation (opposition)
Opponent : ThyssenKrupp Rasselstein GmbH
• EP 1741800 A1 20070110 - JFE STEEL CORP [JP]
• JP H08325670 A 19961210 - KAWASAKI STEEL CO
• EP 1006203 A1 20000607 - KAWASAKI STEEL CO [JP]
• EP 0826436 A1 19980304 - KAWASAKI STEEL CO [JP]
• EP 1291447 A1 20030312 - KAWASAKI STEEL CO [JP]
• EP 1291448 A1 20030312 - KAWASAKI STEEL CO [JP]
• EP 0999288 A1 20000510 - KAWASAKI STEEL CO [JP]
• US 2004238081 A1 20041202 - YOSHINAGA NAOKI [JP], et al
• EP 1193322 B1 20060705 - JFE STEEL CORP [JP]
• JP S5634194 A 19810406 - NIPPON ELECTRIC CO
• JP 2005336610 A 20051208 - JFE STEEL KK
• JP 2004232051 A 20040819 - JFE STEEL KK
• JP 2000303145 A 20001031 - NIPPON KOKAN KK
• JOHN G. LENARD: "Primer on Flat Rolling", 2007, ISBN: 978-0-08-045319-4, pages: 1 - 8, XP055381230
• LUTZ MEYER: "Optimierung der Werkstoffeigenschaften bei der Herstellung von Warmband und Kaltband aus Stahl", STAHLISEN, 1988, pages 21 - 23, XP055381235
• W. BLECK: "Werkstoffkunde Stahl für Studium und Praxis", 2004, Aachen, article "Thermomechanische Behandlung", pages: 349 - 356, XP055381240

Cited by
CZ306161B6; CZ306147B6; EP2671964A4; US10400298B2; US10941456B2; EP2138596B1

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