

## Title (en)

Austenitic stainless steel sheet and method for obtaining this sheet

## Title (de)

Rostfreies austenitisches Stahlblech und Herstellungsverfahren eines solchen Blechs

## Title (fr)

Tôle en acier inoxydable austénitique et procédé d'obtention de cette tôle

## Publication

**EP 2072631 A1 20090624 (FR)**

## Application

**EP 07291575 A 20071220**

## Priority

EP 07291575 A 20071220

## Abstract (en)

Stainless steel sheet comprises: carbon (0.05-0.3 wt.%); silicon (0.3-1 wt.%); manganese (0.5-3 wt.%); nickel (4-10 wt.%); chromium (15-20 wt.%); nitrogen (less than 0.2 wt.%); phosphorus (0.05 wt.%); sulfur (0.015 wt.%); optionally vanadium (0.1-0.5 wt.%); optionally molybdenum (3 wt.%); optionally copper (0.5 wt.%); and the rest of the composition consisting of iron and inevitable impurities resulting from processing, where a microstructure of the steel is mainly austenitic steel, and average size of austenite grains is less than 2 mm. Independent claims are included for: (1) a process for preparing the stainless steel sheet, comprising supplying steel composition, casting the steel in the form of slab, hot rolling the slab to obtain a hot-rolled sheet, annealing the hot rolled sheet at a temperature of greater than 1000[deg] C, pickling the hot-rolled sheet, cold rolling the hot-rolled sheet at a reduction rate of greater than 40%, and carrying out a heat treatment on the cold rolled sheet; (2) an installation for a recrystallization annealing of austenitic stainless steel sheet, comprising a rapid heating device for heating the sheet during the heating phase by electromagnetic induction; and (3) a stainless steel mechanical component obtained from the sheet.

## Abstract (fr)

L'invention a pour objet une tôle en acier inoxydable dont la composition comprend, les teneurs étant exprimées en poids : 0,05 % C, 0,30 %, 0,3 % Si, 1 %, 0,5 % Mn, 3 %, 4 % Ni, 10 %, 15 % Cr, 20 %, N 0,2 %, P 0,05 %, S 0,015 %, optionnellement 0,1 % V, 0,5 %, optionnellement Mo 3 %, optionnellement Cu 0,5 %, le reste de la composition étant constitué de fer et d'impuretés inévitables résultant de l'élaboration, la microstructure dudit acier étant essentiellement austénitique, la taille moyenne des grains d'austénite étant inférieure à 2 micromètres.

## IPC 8 full level

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## Citation (search report)

- [XA] FR 2864108 A1 20050624 - UGINE ET ALZ FRANCE [FR]
- [XA] EP 1739200 A1 20070103 - UGINE & ALZ FRANCE [FR]
- [AX] GB 1057168 A 19670201 - ATOMIC ENERGY AUTHORITY UK
- [XA] GB 473331 A 19371006 - UNITED STATES STEEL CORP
- [A] JP H05117813 A 19930514 - NISSHIN STEEL CO LTD, et al
- [A] EP 1156125 A2 20011121 - NISSHIN STEEL CO LTD [JP]
- [A] US 5817193 A 19981006 - PALUMBO GINO [CA]
- [A] US 3152934 A 19641013 - LULA REMUS A, et al
- [X] SINGH ET AL: "The importance of grain size relative to grain boundary character on the sensitization of metastable austenitic stainless steel", SCRIPTA MATERIALIA, ELSEVIER, AMSTERDAM, NL, vol. 57, no. 3, 22 May 2007 (2007-05-22), pages 185 - 188, XP022089751, ISSN: 1359-6462
- [XA] WASNIK D N ET AL: "RESISTANCE TO SENSITIZATION AND INTERGRANULAR CORROSION THROUGH EXTREME RANDOMIZATION OF GRAIN BOUNDARIES", ACTA MATERIALIA, ELSEVIER, OXFORD, GB, vol. 50, no. 18, 28 October 2002 (2002-10-28), pages 4587 - 4601, XP002394274, ISSN: 1359-6454

## Cited by

US2014338800A1; CN103484779A; CN113637924A; CN106011681A; CN111727269A; CN114480977A; CN115595420A; CN104379773A; US10329649B2; EP3878983A1; CN118241037A; WO2013107922A1

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