

Title (en)
BAKE-HARDENABLE COLD ROLLED STEEL SHEET HAVING EXCELLENT FORMABILITY, AND METHOD OF MANUFACTURING THE SAME

Title (de)
DURCH BAKE-HARDENUNG HÄRTBARES KALTGEWALZTES STAHLBLECH MIT HERVORRAGENDER FORMBARKEIT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
ACIER LAMINE A FROID DURCI AU FOUR PRESENTANT UNE EXCELLENTE FORMABILITE, ET PROCEDE DE FABRICATION DUDIT ACIER

Publication
EP 1704261 B1 20120613 (EN)

Application
EP 04808506 A 20041221

Priority

- KR 2004003375 W 20041221
- KR 20030095393 A 20031223
- KR 20030095395 A 20031223
- KR 20030095394 A 20031223
- KR 20030098745 A 20031229
- KR 20030098744 A 20031229
- KR 20030099437 A 20031229
- KR 20030099435 A 20031229
- KR 20030098743 A 20031229
- KR 20030098746 A 20031229
- KR 20030099350 A 20031229
- KR 20030099351 A 20031229
- KR 20030099463 A 20031230
- KR 20030099462 A 20031230
- KR 20030099464 A 20031230
- KR 20030099461 A 20031230
- KR 20040071395 A 20040907
- KR 20040071705 A 20040908
- KR 20040084297 A 20041021

Abstract (en)
[origin: TW200533765A] A bake-hardenable cold rolled steel sheet, and a method of manufacturing the same, designed to have bake hardenability and excellent formability suitable for automobile bodies, and the like. The steel sheet comprises 0.003~0.005% C, 0.003~0.03% S, 0.01~0.1% Al, 0.02% or less N, 0.2% or less P, 0.03~0.2% Mn and/or 0.005~0.2% Cu, and the balance of Fe and other unavoidable impurities in terms of weight%. When it comprises one of Mn and Cu, the composition of Mn, Cu, and S satisfies one of relationships: $0.58 \cdot \text{Mn}/\text{S} \leq 10$ and $1 \leq 0.5 \cdot \text{Cu}/\text{S} \leq 10$. When it comprises both Mn and Cu, the composition satisfies the relationships: $\text{Mn} + \text{Cu} \leq 0.3$ and $2 \leq 0.5 \cdot (\text{Mn} + \text{Cu})/\text{S} \leq 20$. MnS, CuS, and (Mn, Cu)S precipitates have an average size of 0.2 μm or less. The steel sheets allow the content of solid solution to be controlled by fine MnS, CuS, (Mn, Cu)S precipitates, providing improved bake hardenability, formability, yield strength, and yield strength-ductility balance.

IPC 8 full level
C22C 38/00 (2006.01); **C21D 9/46** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/12** (2006.01); **C22C 38/18** (2006.01)

CPC (source: EP)
C21D 9/46 (2013.01); **C22C 38/002** (2013.01); **C22C 38/004** (2013.01); **C22C 38/02** (2013.01); **C22C 38/04** (2013.01); **C22C 38/12** (2013.01); **C22C 38/18** (2013.01)

Cited by
CN113106331A

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
EP 1704261 A1 20060927; EP 1704261 A4 20080924; EP 1704261 B1 20120613; ES 2389656 T3 20121030; JP 2007517138 A 20070628; JP 4439525 B2 20100324; TW 200533765 A 20051016; TW I361223 B 20120401

DOCDB simple family (application)
EP 04808506 A 20041221; ES 04808506 T 20041221; JP 2006546817 A 20041221; TW 93140008 A 20041222