

Title (en)
DIFFUSION ALLOY STEEL FOIL

Publication
EP 0201910 B1 19890301 (EN)

Application
EP 86106464 A 19860513

Priority
US 73372785 A 19850514

Abstract (en)
[origin: EP0201910A1] A cold rolled solid solution iron-aluminum diffusion alloy foil and a method of making the foil are described. The foil has good room temperature formability and high temperature oxidation and corrosion resistance with useful electrical and magnetic properties and is adapted for use as a tool wrap, as an electrical steel, and as a support for a catalyst after a coating of spine-like aluminum oxide whiskers is grown on the surface thereof. The foil is made by hot-dip aluminum coating a titanium stabilized low carbon steel strip, cold rolling the aluminum coated strip to effect between about a 40 and 99 percent reduction in thickness, and diffusion heating the cold rolled aluminum coated steel strip to form a solid solution iron-aluminum diffusion alloy foil containing between about 2 and 12 wt.% aluminum. In a modified form the cold rolled aluminum coated steel is heated in a dry nitrogen containing atmosphere to form an aluminum nitride-containing surface film which has increased resistance to attack by acidic solutions. As a further modification, the foil product is subjected to additional cold rolling to create strain in the foil and the strained foil is heated to cause the crystal size in the foil to be substantially increased.

IPC 1-7
B23K 20/00; B32B 15/18; B32B 15/20; C22C 38/06; C22C 38/14; C23C 10/50

IPC 8 full level
C22C 38/00 (2006.01); **C22C 38/06** (2006.01); **C22C 38/14** (2006.01); **C23C 2/26** (2006.01); **C23C 2/28** (2006.01); **C23C 10/50** (2006.01)

CPC (source: EP US)
C22C 38/06 (2013.01 - EP); **C23C 2/26** (2013.01 - EP US); **C23C 2/261** (2022.08 - EP US); **C23C 2/28** (2013.01 - EP US)

Citation (examination)

- DE 2745188 C3 19800508
- DE 2313040 C3 19791220
- GB 992321 A 19650519 - DEUTSCHE EDELSTAHLWERKE AG, et al
- FR 1391659 A 19650312 - POMPEY ACIERIES, et al
- BINARY PHASE DIAGRAMS, SECOND ED., VOL. 1, ASM INTERNATIONAL, p. 148

Cited by
CN115717242A; DE3726072A1; DE4222026C1; DE3726075C1; EP0493373A3; EP0318864A1; DE3726073C1; FR2619125A1; EP0861916A1; FR2760244A1; US6086689A; WO2023001869A1

Designated contracting state (EPC)
DE FR GB

DOCDB simple family (publication)
EP 0201910 A1 19861120; EP 0201910 B1 19890301; CA 1245952 A 19881206; DE 3662210 D1 19890406; JP S61270363 A 19861129

DOCDB simple family (application)
EP 86106464 A 19860513; CA 508790 A 19860509; DE 3662210 T 19860513; JP 11176286 A 19860514