

Title (en)

Aqueous solution for cold working treatment of steel sheets

Title (de)

Wässrige Lösung zur Kaltverfestigungsbehandlung von Stahlblechen

Title (fr)

Solution aqueuse de traitement d'écrouissage de tôles d'acier

Publication

EP 0778091 B1 20000119 (FR)

Application

EP 96402301 A 19961030

Priority

FR 9514440 A 19951207

Abstract (en)

[origin: EP0778091A1] Treatment solution for steel sheets that have been rolled and recrystallisation annealed contains maximum 5.10×10^{-2} mol/l water soluble salt of heptanoic acid and 0.1-1 times the salt concentration of oxidising agent.

IPC 1-7

B21B 45/02

IPC 8 full level

C10M 173/02 (2006.01); **B21B 45/02** (2006.01); **C23F 11/08** (2006.01); **C23F 11/12** (2006.01); **B21B 1/22** (2006.01); **C10N 30/12** (2006.01); **C10N 40/20** (2006.01)

CPC (source: EP US)

B21B 45/0206 (2013.01 - EP US); **C23F 11/08** (2013.01 - EP US); **B21B 2001/228** (2013.01 - EP US)

Designated contracting state (EPC)

AT BE CH DE DK ES FI FR GB GR IE IT LI LU NL PT SE

DOCDB simple family (publication)

EP 0778091 A1 19970611; **EP 0778091 B1 20000119**; AT E188895 T1 20000215; CA 2191938 A1 19970608; DE 69606270 D1 20000224; DE 69606270 T2 20000831; ES 2143162 T3 20000501; FR 2742080 A1 19970613; FR 2742080 B1 19980116; JP H09194873 A 19970729; PT 778091 E 20000630; US 5814247 A 19980929

DOCDB simple family (application)

EP 96402301 A 19961030; AT 96402301 T 19961030; CA 2191938 A 19961203; DE 69606270 T 19961030; ES 96402301 T 19961030; FR 9514440 A 19951207; JP 34276096 A 19961206; PT 96402301 T 19961030; US 76067196 A 19961209