Title (en)

Procédé et outil de traitement thermique d'une matière première en tôle d'aluminium ainsi que la matière première en tôle d'aluminium traitée par ce type de procédé

Title (de)

Verfahren und Werkzeug zur Wärmebehandlung von Aluminiumblechwerkstoff sowie nach einem derartigen Verfahren wärmebehandelter Aluminiumblechwerkstoff

Title (fr)

Method and tool for thermal treatment of aluminium sheet material and aluminium sheet material thermally treated using such a method

Publication

EP 2554288 B1 20150923 (DE)

Application

EP 12178269 A 20120727

Priority

DE 102011080528 A 20110805

Abstract (en)

[origin: EP2554288A1] Heat treating of aluminum sheet material (8), comprises: providing aluminum sheet material; heating the aluminum sheet material at a temperature that is >= heating temperature; maintaining the temperature during a heating period; quenching a deterrent portion (10) of the sheet material at a temperature = a quenching temperature; and cooling a cooling portion (11) of the sheet material at a temperature = a cooling temperature, where cooling takes place within a cooling period, which is greater than the quenching period, and shielding of the cooling portion by a tool occurs during quenching. Heat treating of aluminum sheet material (8), comprises (a) providing aluminum sheet material, (b) heating the aluminum sheet material at a temperature that is >= heating temperature, (c) maintaining the temperature during heating period, (d) quenching at least one deterrent portion (10) of the aluminum sheet material at a temperature that is = a quenching temperature, where the quenching is carried out within a quenching period, and (e) cooling at least one cooling portion (11) of the aluminum sheet material at a temperature that is = a cooling temperature, preferably ambient temperature, where cooling is carried out within a cooling period, which is greater than the quenching period, and shielding of the cooling portion using a tool takes place during quenching. Independent claims are also included for: (1) the aluminum sheet material having tailored material properties, manufactured by the above mentioned method, where the cooling portion opposite to the deterrent portion exhibits a mechanical material property deviating by a differential amount, preferably a reduced yield strength and/or a reduced tensile strength, and where the differential amount is stable at least during a time interval for further processing, preferably forming; and (2) the tool for carrying out the above mentioned method, comprising two tool halves connectable with each other, where at least one of the tool halves includes an opening (6) for accessibility to the deterrent portion of the aluminum sheet material.

IPC 8 full level

B21D 37/16 (2006.01); **C22F 1/04** (2006.01)

CPC (source: EP)

B21D 37/16 (2013.01); **C22F 1/002** (2013.01); **C22F 1/04** (2013.01); **C22F 1/05** (2013.01); **C22F 1/053** (2013.01); C21D 1/673 (2013.01); C21D 2221/00 (2013.01)

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EP3187599A1; CN106885474A; WO2018011069A1; US10369606B2; WO2018024408A1

Designated contracting state (EPC)

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DOCDB simple family (publication)

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