

## Title (en)

Method and apparatus for continuous extrusion of thixo-magnesium into plate or bar shaped extrusion products

## Title (de)

Verfahren und Vorrichtung zur kontinuierlichen Extrusion von Thixomagnesium in platten- oder stangenförmige Extrusionsprodukte

## Title (fr)

Procédé et appareil pour l'extrusion en continu de thixo-magnésium en produits d'extrusion en forme de plaques ou de barres

## Publication

**EP 2145704 A1 20100120 (EN)**

## Application

**EP 08159939 A 20080708**

## Priority

EP 08159939 A 20080708

## Abstract (en)

A method for extrusion of magnesium based alloys for obtaining net shapes, or near net shapes in the form of plate or bar shaped extrusion products. The extrusion product of the method has a thixotropic structure and stable shape. The method includes providing magnesium based alloy feed stock and converting at least a portion of the feedstock into a thixotropic slurry. The method further exerts a driving force on the feedstock, upstream of the thixotropic slurry, to advance the feedstock in a downstream direction and subjecting a downstream end of the thixotropic slurry to controlled rapid cooling to obtain a thixotropic structure. The method further allows a downstream end of the converted feedstock to escape through a shaping die, so as to obtain bar stock having a predefined cross-sectional shape. An extrusion device for carrying out the method is also provided. The extrusion device includes a supply arrangement for feeding feedstock, a conversion chamber, agitation means, cooling means and a shaping die. The agitation means advantageously includes an inductive heater that electromagnetically agitates any liquid or semi-liquid metal in the conversion chamber.

## IPC 8 full level

**B21C 23/00** (2006.01); **C22C 23/00** (2006.01)

## CPC (source: EP)

**B21C 23/002** (2013.01); **C22C 23/00** (2013.01)

## Citation (applicant)

- US 3765216 A 19731016 - GREEN D
- US 4794777 A 19890103 - EAST JOHN [GB], et al

## Citation (search report)

- [X] EP 0839589 A1 19980506 - ALUSUISSE LONZA SERVICES AG [CH]
- [X] US 2003173004 A1 20030918 - HOSTETLER DAVID W [US]
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- [A] KOREN Z ET AL: "Development of semi-solid processes for hot extrusion of magnesium alloys", MATERIALS SCIENCE FORUM, AEDERMANNSTADT, CH, vol. 488-489, no. Magnesium, 1 January 2005 (2005-01-01), pages 605 - 610, XP009104960, ISSN: 0255-5476
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- [A] MIWA KENJI ET AL: "Thixoforming of partially remelted magnesium alloys", PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON PROCESSING OF SEMI-SOLID ALLOYS AND COMPOSITES, XX, XX, 1 January 1994 (1994-01-01), pages 483 - 492, XP009104943
- [A] SPINAT ELI ET AL: "Production of thixotropic magnesium alloys billets", PROCEEDINGS / 59TH ANNUAL WORLD MAGNESIUM CONFERENCE : MONTREAL, CANADA, MAY 19 - 21, 2002, INTERNATIONAL MAGNESIUM ASSOCIATION, vol. 59th, 19 May 2002 (2002-05-19), pages 62 - 65, XP009104958

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CN102489958A; WO2012036583A1

## Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

## Designated extension state (EPC)

AL BA MK RS

## DOCDB simple family (publication)

**EP 2145704 A1 20100120**; WO 2010005306 A1 20100114

## DOCDB simple family (application)

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