

## Title (en)

AlMg alloy with improved mechanical properties for welded constructions

## Title (de)

AlMg-Legierung mit verbesserten mechanischen Eigenschaften für Schweisskonstruktionen

## Title (fr)

Alliage AlMg pour constructions soudées à caractéristiques mécaniques améliorées

## Publication

**EP 1178125 A2 20020206 (FR)**

## Application

**EP 01113630 A 19961015**

## Priority

- EP 96420311 A 19961015
- FR 9512466 A 19951018

## Abstract (en)

An Al-Mg alloy sheet used for the production of welded structures of thickness above 2 mm and manufactured by semi-continuous casting has breaking strength  $R_m$  greater than 275 MPa, elongation A above 17.5, and product  $A \times R_m$  above 6500. Preferred Features: The Al-Mg alloy comprises (in weight %): Mg 4.2-4.8; Mn less than 0.5; Zn less than 0.4, preferably 0.07-0.2; Fe 0.20-0.45; Si less than 0.3; optionally, Cr less than 0.15, Cu less than 0.25, Ti less than 0.2, and other elements less than 0.05 each and less than 0.15 in total; and Al the remainder. Mn+Zn is less than 0.7, preferably less than 0.2; and %Fe is greater than 0.5%Mn. The volumetric fractions of eutectic precipitates and dispersoids are above 0.7% and less than 1.5 times the fraction of eutectics, respectively. The sheet is fabricated without final annealing and the fabrication process includes hot rolling at a rolling exit temperature of 300-370 degrees C, preferably 320-360 degrees C. The width of the sheet is above 2200 mm. Independent claims are given for use of the Al-Mg alloy sheet for the fabrication of road and rail tanks, for road, rail and/or marine transport containers, for welded and/or forged car and lorry wheels, and for welded structures obtained by MIG or TIG welding with a bevel of around 45 degrees over about two-thirds of the thickness.

## Abstract (fr)

L'invention concerne des tôles pour constructions soudées en alliage AlMg présentant une résistance à la rupture  $R_m > 275$  MPa, un allongement  $A > 17,5\%$  et un produit  $A \times R_m > 6500$  de composition (% en poids): Mg: 4,2 - 4,8#####Mn: < 0,5#####Zn < 0,4 Fe < 0,45#####Si < 0,30 et éventuellement: Cr < 0,15#####Cu < 0,25#####Ti < 0,20#####Zr < 0,20 autres éléments < 0,05 chacun et < 0,15 au total, balance Al, avec la relation: Mn + Zn < 0,7. Les tôles selon l'invention sont destinées notamment à la fabrication de citernes ferroviaires ou routières, de conteneurs de transport et de roues de véhicules.

## IPC 1-7

**C22C 21/06**; **C22F 1/047**

## IPC 8 full level

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## CPC (source: EP KR)

**C22C 21/06** (2013.01 - EP KR); **C22F 1/047** (2013.01 - EP)

## Cited by

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**EP 96420311 A 19961015**; DE 01113630 T 19961015; DE 69617872 T 19961015; DE 96420311 T 19961015; EP 01113630 A 19961015; FR 9512466 A 19951018; JP 27642596 A 19961018; KR 19960046645 A 19961018