

Title (en)  
LOW COST, SUBSTANTIALLY ZR-FREE ALUMINUM-LITHIUM ALLOY FOR THIN SHEET PRODUCT WITH HIGH FORMABILITY

Title (de)  
KOSTENGÜNSTIGE, IM WESENTLICHEN ZR-FREIE ALUMINIUM-LITHIUM-LEGIERUNG FÜR DÜNNBLECH MIT HOHER FORMBARKEIT

Title (fr)  
ALLIAGE ALUMINIUM-LITHIUM À FAIBLE COÛT ET SENSIBLEMENT SANS ZR POUR UN PRODUIT EN FEUILLE MINCE À HAUTE FORMABILITÉ

Publication  
**EP 3495520 B1 20230607 (EN)**

Application  
**EP 18210045 A 20181204**

Priority  
US 201715830569 A 20171204

Abstract (en)  
[origin: EP3495520A1] A low cost, substantially Zr-free, low density 2xxx aluminum-lithium alloy is disclosed. The aluminum-lithium alloy can be produced to high formability sheet products capable of being formed into wrought products with a thickness of 0.01" to 0.249". Aluminum-lithium alloys of the invention comprise from 3.2 to 4.1 wt. % Cu, 1.0 to 1.8 wt. % Li, 0.8 to 1.2 wt. % Mg, 0.10 to 0.50 wt. % Zn, 0.10 to 1.0 wt. % Mn, up to 0.12 wt. % Si, up to 0.15 wt. % Fe, up to 0.15 wt. % Ti, up to 0.15 wt. % incidental elements, with the total of these incidental elements not exceeding 0.35 wt. %, and the balance being aluminum. Ag should not be intentionally added and should not be more than 0.1 wt. % as a non-intentionally added element. Zr should not be intentionally added and should not be more than 0.05 wt. % as a non-intentionally added element. Mg is at least equal to or higher than 2 \* Zn in weight percent in the invented alloy. Methods for manufacturing wrought products including aluminum-lithium alloys of the present invention are also provided.

IPC 8 full level  
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Citation (opposition)  
Opponent : C-TEC CONSTELLIUM TECHNOLOGY CENTER, CONSTELLIUM ISSOIRE  
• EP 3012338 A1 20160427 - KAISER ALUMINUM FABRICATED PRODUCTS LLC [US]  
• CN 102021457 A 20110420 - AVIC BEIJING INST OF AERONAUTICAL MATERIALS  
• WO 2007080267 A1 20070719 - ALCAN RHENALU [FR], et al  
• CN 101967588 A 20110209 - BEIJING INST AERONAUTICAL MATERIALS AVIAT INDUSTRY CORP CHINA  
• ZENG X H, AHMAD M; ENGLER O: "Texture gradient, average texture, and plastic anisotropy in various Al-Li sheet alloys", MATERIALS SCIENCE AND TECHNOLOGY, vol. 10, 1 July 1984 (1984-07-01), pages 581 - 591, XP093171192  
• "Standards and Data 2017 Metric SI", 1 December 2017, ALUMINUM ASSOCIATION TECHNICAL COMMITTEE ON PRODUCT STANDARDS, ISBN: 978-0-9863631-2-2, article ALUMINUM ASSOCIATION: "Aluminum and Aluminum Alloy Density Calculation Procedure", pages: 2 - 2-13, XP093171194  
• ASTM: "Standard Test Methods for Bend Testing of Material for Ductility", ASTM E 290-09, 1 January 2009 (2009-01-01), XP093171191, Retrieved from the Internet <URL:https://www.astm.org/e0290-09.html>

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