

Title (en)  
High-strength, wear-resistant aluminum alloy

Title (de)  
Hochfestige und verschleissfestige Aluminiumlegierung

Title (fr)  
Alliage d'aluminium à haute résistance mécanique et résistance à l'usure

Publication  
**EP 0558957 B1 19970528 (EN)**

Application  
**EP 93101944 A 19930208**

Priority  
JP 2682192 A 19920213

Abstract (en)  
[origin: EP0558957A2] A high-strength, wear-resistant aluminum alloy consisting of an Al-Si-based alloy consisting of Al as a main metal element and, added thereto, additive elements and Si element, characterized in that the mean crystal grain size of a matrix of Al is 40 to 1000 nm, the mean particle size of particles of a stable phase or a metastable phase of various intermetallic compounds formed from Al and the additive elements including Si and/or various intermetallic compounds formed from the additive elements themselves is 10 to 800 nm, the size of elemental Si particles is 10  $\mu$ m or less, the intermetallic compound particles are distributed in a volume fraction of 18 to 35 % in the Al matrix, and the elemental Si particles are distributed in a volume fraction of 15 to 40% in the Al matrix. The aluminum alloy has an improved strength at room temperature and a large toughness and can maintain the properties inherent in a material produced by the rapid solidification process even when it undergoes a thermal influence during working.

IPC 1-7  
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IPC 8 full level  
**C22C 21/02** (2006.01); **C22C 45/08** (2006.01)

CPC (source: EP)  
**C22C 21/02** (2013.01); **C22C 45/08** (2013.01)

Citation (examination)  
• EP 0208631 A1 19870114 - CEGEDUR [FR]  
• ALLOYS, ICSMA 8, VOLUME 3' 1989 , PERGAMON PRESS , OXFORD

Cited by  
EP0693567A3; US6030577A; US6136106A; EP0861912A3; US6962673B2; US11603583B2; US11885002B2; US10697046B2; US10633725B2; WO2015138748A1; WO02077308A1; US10822675B2; US9453272B2; US11814701B2

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