

Title (en)  
SUBSTANTIALLY PB-FREE ALUMINUM ALLOY COMPOSITION

Title (de)  
IM WESENTLICHEN BLEIFREIE ALUMINIUMLEGIERUNG

Title (fr)  
COMPOSITION D'ALLIAGE D'ALUMINIUM SENSIBLEMENT EXEMPT DE PB

Publication  
**EP 3425074 A1 20190109 (EN)**

Application  
**EP 17181963 A 20170718**

Priority  
US 201715640722 A 20170703

Abstract (en)  
A substantially Pb-free aluminum alloy consisting essentially of (in weight percent) Si < 0.40; Fe < 0.70; Cu 5.0 - 6.0; Zn < 0.30; Bi 0.20 - 0.80; Sn 0.10 - 0.50 with the remainder being aluminum and incidental impurities. In one embodiment for applications that are sensitive to cracking from stresses generated during machining, the Bi/Sn ratio (in terms of weight percent) is less than 1.32/1 aluminium alloy is produced in a T8 temper. On another embodiment for applications that are not sensitive to cracking from stresses during machining but would benefit from smaller machine chip size and more aggressive material removal rates, the aluminum alloy is produced using a T6 temper. The substantially Pb-free aluminum alloy has mechanical properties that include Ultimate Tensile Strength %¥ 45.0 KSI / 311 MPa, Yield Strength %¥ 38.0 KSI / 262 MPa, and % Elongation %¥ 10%.

IPC 8 full level  
**C22C 21/12** (2006.01)

CPC (source: CN EP KR US)  
**B21C 23/002** (2013.01 - KR); **C22C 21/12** (2013.01 - EP KR US); **C22C 21/14** (2013.01 - CN EP KR US); **C22C 21/16** (2013.01 - EP US); **C22C 21/18** (2013.01 - CN EP KR US); **C22F 1/057** (2013.01 - EP US)

Citation (applicant)  
• US 5776269 A 19980707 - FARRAR JR LARRY E [US], et al  
• US 5916385 A 19990629 - COATS II NORMAN LEROY [US], et al

Citation (search report)  
• [A] JP 2001240931 A 20010904 - KOBE STEEL LTD  
• [A] JP 2004002947 A 20040108 - KOBE STEEL LTD  
• [A] JP 2006077298 A 20060323 - SUMITOMO LIGHT METAL IND  
• [A] US 5803994 A 19980908 - COATS II NORMAN LEROY [US], et al  
• [T] SPIEKERMANN P: "LEGIERUNGEN - EIN BESONDERES PATENTRECHTLICHES PROBLEM? - LEGIERUNGSPRUEFUNG IM EUROPÄISCHEN PATENTAMT -", MITTEILUNGEN DER DEUTSCHEN PATENTANWÄLTE, HEYMANN, KOLN, DE, 1 January 1993 (1993-01-01), pages 178 - 190, XP000961882, ISSN: 0026-6884

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Designated extension state (EPC)  
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DOCDB simple family (publication)  
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**EP 17181963 A 20170718**; CN 201810668149 A 20180626; KR 20180076626 A 20180702; SI 201730699 T 20170718; TW 107122650 A 20180629; US 201715640722 A 20170703; US 202015930768 A 20200513