



(11) **EP 3 460 082 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
15.05.2019 Bulletin 2019/20

(51) Int Cl.:
C22C 9/00 (2006.01) C22F 1/08 (2006.01)

(43) Date of publication A2:
27.03.2019 Bulletin 2019/13

(21) Application number: **18196026.1**

(22) Date of filing: **21.09.2018**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(71) Applicant: **JX Nippon Mining & Metals Corporation**
Tokyo 100-8164 (JP)

(72) Inventor: **HORIE, Hiroyasu**
Hitachi-shi, Ibaraki 317-0056 (JP)

(74) Representative: **Mewburn Ellis LLP**
City Tower
40 Basinghall Street
London EC2V 5DE (GB)

(30) Priority: **22.09.2017 JP 2017182751**

(54) **TITANIUM COPPER FOR ELECTRONIC COMPONENTS**

(57) The present invention is intended to improve bending workability of titanium copper for electronic components, and to provide a titanium copper for electronic components, which has excellent bending workability even when subjected to beating process, and to provide a method for manufacturing the same. One embodiment of the present invention is a titanium copper, comprising 2.0 to 4.5 mass% of Ti, and at least one element selected from the group consisting of Fe, Co, Ni, Cr, Zn, Zr, P, B,

Mo, V, Nb, Mn, Mg, and Si in total of 0 to 0.5 mass% as a third element(s), and the rest consisting of copper and inevitable impurities, wherein a work-hardening exponent is 0.05 to 0.25, and an X-ray diffraction integrated intensity $I_{\{200\}}$ from the $\{200\}$ crystal face on the surface of the titanium copper and an X-ray diffraction integrated intensity $I_0\{200\}$ of a pure copper standard powder satisfy the following relation: $0.15 \leq I_{\{200\}} / I_0\{200\} \leq 0.70$.

EP 3 460 082 A3



EUROPEAN SEARCH REPORT

Application Number
EP 18 19 6026

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2010/139822 A1 (GAO WEILIN [JP] ET AL) 10 June 2010 (2010-06-10) * paragraphs [0068] - [0078], [0083] - [0085]; table 1 *	1-6	INV. C22C9/00 C22F1/08
X	EP 2 196 548 A1 (DOWA METALTECH CO LTD [JP]) 16 June 2010 (2010-06-16) * paragraphs [0058] - [0067], [0073] - [0076]; table 1 *	1-6	
A	US 4 566 915 A (IKUSHIMA KAZUO [JP] ET AL) 28 January 1986 (1986-01-28) * examples 1,2 *	1-6	
			TECHNICAL FIELDS SEARCHED (IPC)
			C22C C22F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 29 March 2019	Examiner González Junquera, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 19 6026

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

29-03-2019

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010139822 A1	10-06-2010	NONE	
EP 2196548 A1	16-06-2010	NONE	
US 4566915 A	28-01-1986	JP S6257704 B2	02-12-1987
		JP S60114558 A	21-06-1985
		US 4566915 A	28-01-1986

15

20

25

30

35

40

45

50

55

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82