(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 November 2013 (14.11.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/167603 A1

(51) International Patent Classification:
H01L 23/49 (2006.01)

(21) International Application Number:
PCT/EP2013/059509

(22) International Filing Date:
7 May 2013 (07.05.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12003605.8 7 May 2012 (07.05.2012) EP

(71) Applicant: **HERAEUS MATERIALS TECHNOLOGY GMBH & CO. KG** [DE/DE]; Heraeusstr. 12-14, 63450 Hanau (DE).

(72) Inventors: **MILKE, Eugen**; Wolfsgangstraße 2, 60322 Frankfurt (DE). **PRENOSIL, Peter**; Brüder-Grimm-Str. 3, 63477 Maintal (DE). **THOMAS, Sven**; Dieffenbachstr. 11, 63128 Dietzenbach (DE).

(74) Agent: **BRAND, Normen**; Heraeus Holding GmbH, Schutzrechte, Heraeusstr. 12-14, Hanau 63450 (DE).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(54) Title: ALUMINIUM COATED COPPER BOND WIRE AND METHOD OF MAKING THE SAME

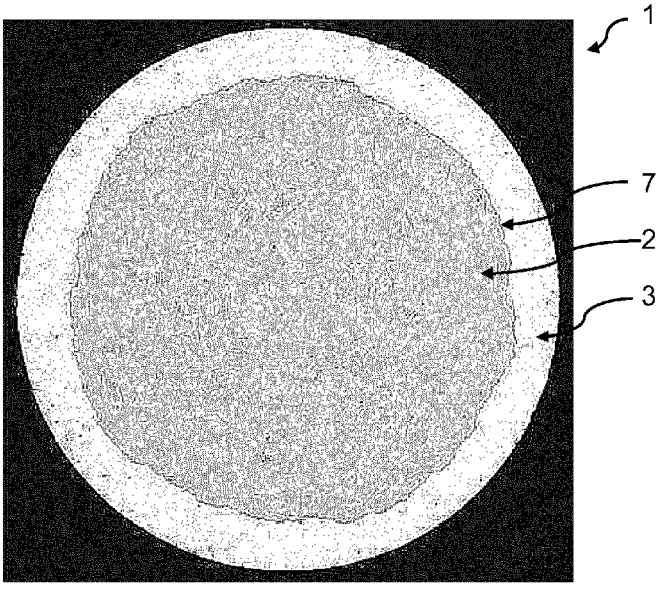


Fig. 8

(57) Abstract: The invention relates to a wire, preferably a bonding wire for bonding in microelectronics, comprising a copper core (2) with a surface and coating layer (3), which coating layer (3) is superimposed over the surface of the core (2), wherein the coating layer (3) comprises aluminium, wherein in any cross-sectional view of the wire the area share of the coating layer (3) is in the range of from 20 to 50 %, based on the total area of the cross-section of the wire, and wherein the aspect ratio between the longest path and the shortest path through the wire in any cross-sectional view is in the range of from larger than 0.8 to 1.0, and wherein the wire has a diameter in the range of from 100 µm to 600 µm. The invention further relates to a process for making a wire, to a wire obtainable by said process, to an electric device comprising at least two elements and at least aforementioned wire, to a propelled device comprising said electric device and to a process of connecting two elements through aforementioned wire by wedge bonding.

WO 2013/167603 A1