

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
19 June 2025 (19.06.2025)



(10) International Publication Number
WO 2025/128503 A1

(51) International Patent Classification:

H01B 1/22 (2006.01) H10N 30/093 (2023.01)
H10N 30/097 (2023.01)

(21) International Application Number:

PCT/US2024/059286

(22) International Filing Date:

10 December 2024 (10.12.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/609,899 14 December 2023 (14.12.2023) US

(71) Applicant: CELANESE MERCURY HOLDINGS INC.

[US/US]; Building 304, Experimental Station, 200 Powder Mill Road, Wilmington, Delaware 19803 (US).

(72) Inventors; and

(71) Applicants (for US only): OZAWA, Kazutaka [JP/US];

c/o Celanese Mercury Holdings Inc., Building 304, Experimental Station, 200 Powder Mill Road, Wilmington, Delaware 19803 (US). ROSENFELD, Henry [US/US]; c/o Celanese Mercury Holdings Inc., Building 304, Experimental Station, 200 Powder Mill Road, Wilmington, Delaware 19803 (US). NAKAMOTO, Aya [JP/US]; c/o Celanese Mercury Holdings Inc., Building 304, Experimental Station, 200 Powder Mill Road, Wilmington, Delaware 19803 (US). FUKUI, Yushi [JP/US]; c/o Celanese Mercury Holdings

Inc., Building 304, Experimental Station, 200 Powder Mill Road, Wilmington, Delaware 19803 (US).

(74) Agent: WHELAN, Bethany J. et al.; Dority & Manning, P.A., P. O. Box 1449, Greenville, South Carolina 29602-1449 (US).

(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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available):

ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, 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, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) Title: SINTERING METHODS

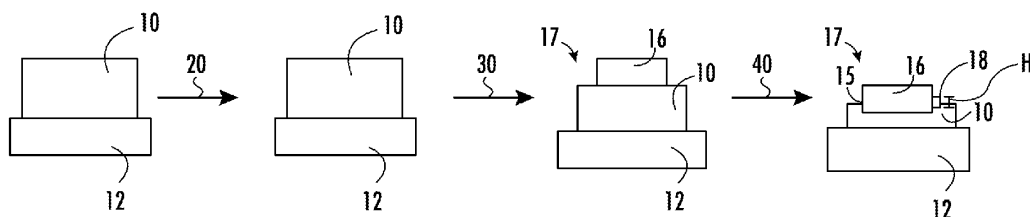


FIG. 1

(57) Abstract: A sintering method for joining at least two components is provided. The method includes disposing a conductive paste on a first component. The conductive paste includes a metal powder dispersed in an organic vehicle. The metal powder has a D50 ranging from about 200 nm to about 500 nm. The method includes drying the conductive paste to form a dried conductive paste and disposing a second component on the dried conductive paste to form a component arrangement. The method includes sintering the component arrangement without applying external pressure to the component arrangement. Electronic articles are also provided.

[Continued on next page]

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*