

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
03 April 2025 (03.04.2025)



(10) International Publication Number
WO 2025/071497 A1

(51) International Patent Classification:

B22F 9/08 (2006.01) **C22C 1/04** (2023.01)
B22F 10/28 (2021.01) **C22C 21/00** (2006.01)
B33Y 70/00 (2020.01)

(21) International Application Number:

PCT/SG2024/050632

(22) International Filing Date:

27 September 2024 (27.09.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202302806U 29 September 2023 (29.09.2023) SG
10202303465Y 08 December 2023 (08.12.2023) SG

(71) Applicants: **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way,

#20-10 Connexis North Tower, Singapore 138632 (SG).
PROTERIAL, LTD. [—/JP]; Toyosu Prime Square, 5-6-36
Toyosu, Koto-ku, Tokyo, 135-0061 (JP).

(72) Inventors: **HU, Zhiheng**; c/o PKM, Singapore Institute of

Manufacturing Technology 2 Fusionopolis Way, #08-04 In-

novis, Singapore 138634 (SG). **SIN, Wai Jack**; c/o PKM, Singapore Institute of Manufacturing Technology 2 Fusionopolis Way, #08-04 Innovis, Singapore 138634 (SG). **NAI, Mui Ling Sharon**; c/o PKM, Singapore Institute of Manufacturing Technology 2 Fusionopolis Way, #08-04 Innovis, Singapore 138634 (SG). **NG, Kam Loong**; Proterial Asia Pacific Pte. Ltd., 12 Gul Ave, Singapore 629656 (SG). **LOW, Zi Xuan**; Proterial Asia Pacific Pte. Ltd., 12 Gul Ave, Singapore 629656 (SG). **SIN, Nicolas**; Proterial Asia Pacific Pte. Ltd., 12 Gul Ave, Singapore 629656 (SG). **MARUNO, Yusaku**; Proterial, Ltd., Toyosu Prime Square, 5-6-36, Toyosu, Koto-ku, Tokyo, 135-0061 (JP). **DAIGO, Yuuzo**; Proterial, Ltd., Toyosu Prime Square, 5-6-36, Toyosu, Koto-ku, Tokyo, 135-0061 (JP).

(74) Agent: **AMICA LAW LLC**; 77 Robinson Road, #22-01 Robinson 77, Singapore 068896 (SG).

(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,

(54) Title: ALUMINUM-BASED COMPOSITION, ALUMINUM ALLOY POWDER, ALUMINUM ALLOY ADDITIVE MANUFACTURED PRODUCT, METHOD OF FORMING ALUMINUM ALLOY POWDER, AND METHOD OF ADDITIVE MANUFACTURED PRODUCT

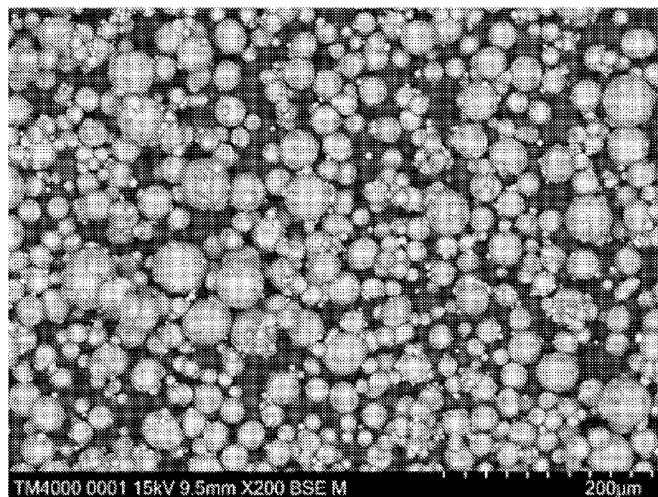


FIG. 10

(57) Abstract: An aluminum-based composition, which includes aluminum, magnesium, copper, chromium, silicon, scandium, and zirconium, and further includes one or more other metals which are not aluminum, magnesium, copper, chromium, scandium, and zirconium. Based on a total amount of the aluminum-based composition, the scandium is present in an amount of 0.46 mass% to 0.80 mass% and the zirconium is present in an amount of 0.15 mass% to 0.40 mass%.

[Continued on next page]

WO 2025/071497 A1

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).

Published:

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