

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
08 February 2024 (08.02.2024)



(10) International Publication Number
WO 2024/028539 A1

- (51) **International Patent Classification:**
H10K 85/10 (2023.01) *H10K 71/00* (2023.01)
- (21) **International Application Number:**
PCT/FI2023/050451
- (22) **International Filing Date:**
02 August 2023 (02.08.2023)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
20225704 05 August 2022 (05.08.2022) FI
- (71) **Applicant:** TURUN YLIOPISTO [FI/FI]; Yliopistonmäki, 20014 TURUN YLIOPISTO (FI).
- (72) **Inventors:** KVARNSTRÖM, Carita; c/o Kemian laitos, 20014 Turun yliopisto (FI). SALOMÄKI, Mikko; c/o Kemian laitos, 20014 Turun yliopisto (FI). DAMLIN, Pia; c/o Kemian laitos, 20014 Turun yliopisto (FI). LOIKAS, Kari; c/o Kemian laitos, 20014 Turun yliopisto (FI). NAU-MA, Mauri; c/o Kemian laitos, 20014 Turun yliopisto (FI). YEWALE, Rahul; c/o Kemian laitos, 20014 Turun yliopis-to (FI).
- (74) **Agent:** LAINE IP OY; Porkkalankatu 24, 00180 Helsinki (FI).
- (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).

Published:

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

(54) **Title:** A METHOD FOR MANUFACTURING A PATTERNED POLYMER FILM STRUCTURE

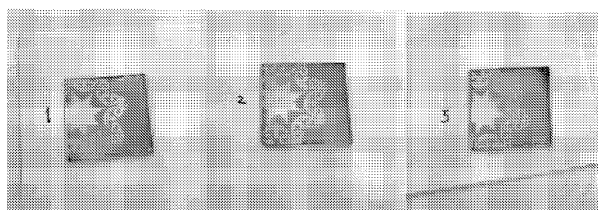


Fig. 4

(57) **Abstract:** The present invention relates to a method for manufacturing a patterned film on a substrate, the method comprising forming an oxidant layer on a substrate by applying a solution comprising an oxidant on the surface of the substrate by coating; drying the oxidant layer; applying an inhibiting agent on the oxidant layer according to a pattern, to partially inhibit the formation of the oxidant layer; and forming a polymer layer by exposing the surface to a monomer vapour at a polymerisation temperature of 20 – 95 °C under atmospheric pressure.



WO 2024/028539 A1