

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
01 September 2022 (01.09.2022)



(10) International Publication Number
WO 2022/182971 A1

(51) International Patent Classification:

A61L 29/06 (2006.01) *A61L 29/18* (2006.01)
A61L 29/14 (2006.01) *A61L 33/00* (2006.01)
A61L 29/16 (2006.01) *A61L 33/06* (2006.01)

(21) International Application Number:

PCT/US2022/017872

(22) International Filing Date:

25 February 2022 (25.02.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/153,808 25 February 2021 (25.02.2021) US

(71) Applicant: **BECTON, DICKINSON AND COMPANY**

[US/US]; 1 Becton Drive, MC 110, Franklin Lakes, New Jersey 07417-1880 (US).

(72) Inventors: **BAI, He**; 2812 E. Amberwick Ln., Sandy, Utah

84093 (US). **ZHANG, Hua**; 3673 W. Delhi Dune Ct., South Jordan, Utah 84007 (US). **WEIMER, Marc W.**; 10894 S. Saddlebrook Cir., South Jordan, Utah 84095 (US). **FREASIER, James**; 2196 E. Vimont Ave., Salt Lake City, Utah 84109 (US).

(74) Agent: **SMIRK, Rebecca A.**; SERVILLA WHITNEY

LLC, 33 Wood Avenue South, Suite 830, Iselin, New Jersey 08830 (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, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JM, JO, JP, KE, KG, KH,

KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, 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, GH, GM, KE, LR, LS, MW, MZ, NA, RW, 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, 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: POLYURETHANE BASED MEDICAL ARTICLES

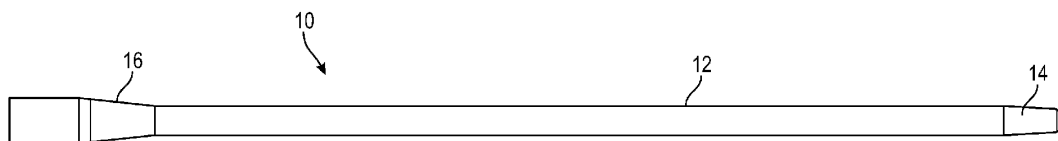


FIG. 1

(57) Abstract: Medical articles formed from a polyurethane-based resin including an ionically-charged modifier provide enhanced properties. The polyurethane-based resin is a reaction product of ingredients comprising: a diisocyanate; a diol chain extender; a polyglycol; and an anionic modifier incorporated into a backbone, as a side chain, or both of the polyurethane-based resin. Exemplary anionic modifier includes 2,2-bis(hydroxymethyl)butyric acid (BHMB) and/or bis-1,4-((2-hydroxypropoxy)-2-propoxy)-butane sulfonate sodium salt (SULFADIAL®-7Q). Medical articles herein either have inherent antimicrobial and/or anti-fouling characteristics or can easily bond cationic active agents to provide desirable material properties, including antimicrobial, anti-fouling, and/or radiopacity.



WO 2022/182971 A1