



(51) International Patent Classification:

H01M 10/54 (2006.01) C22B 3/00 (2006.01)
C22B 3/08 (2006.01) C22B 47/00 (2006.01)

(21) International Application Number:

PCT/SG2023/050108

(22) International Filing Date:

22 February 2023 (22.02.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/312,978 23 February 2022 (23.02.2022) US

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(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, 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,

(54) Title: PROCESSES AND SYSTEMS FOR PURIFYING AND RECYCLING LITHIUM-ION BATTERY WASTE STREAMS

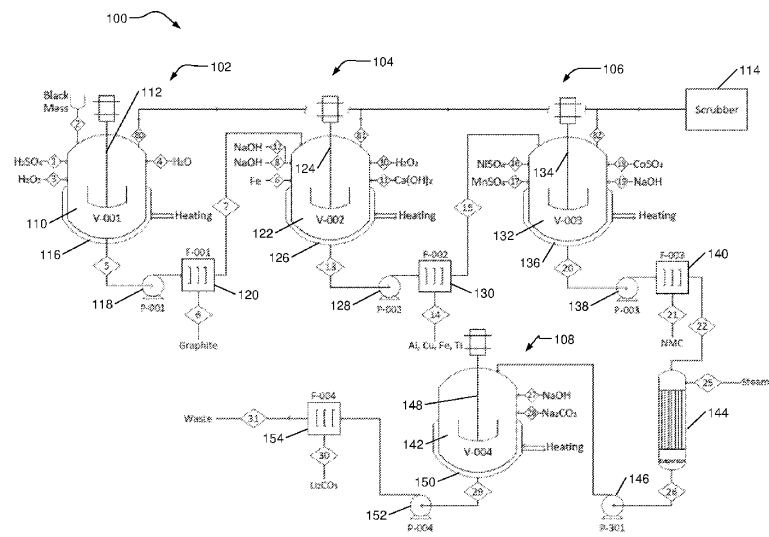


FIG. 1

(57) Abstract: Processes and systems for recovering metals from a lithium-ion battery waste stream include optionally conducting a leaching process to form a leachate stream, purifying the leachate stream in a first reactor to remove fluorine (F), phosphate (P), and one or more impurity metals selected from the group consisting of: copper (Cu), aluminum (Al), iron (Fe), and titanium (Ti), separating nickel (Ni), manganese (Mn), and cobalt (Co) from the purified filtrate liquid stream by passing the purified filtrate liquid stream into (i) a reactor for conducting a co-precipitation process by increasing pH or (ii) one or more chromatographic columns to generate an intermediate liquid stream comprising lithium (Li) and one or more recovered products comprising one or more of nickel (Ni), manganese (Mn), and cobalt (Co). The intermediate liquid stream can be introduced into a lithium precipitation reactor to precipitate at least one compound comprising lithium (Li).

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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).

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Published:

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