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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 September 2025 (25.09.2025)

WIPO | PCT

(10) International Publication Number
WO 2025/198534 A1

(51) International Patent Classification:
H01M 8/06 (2016.01) *H01M 8/18* (2006.01)

(21) International Application Number:
PCT/SG2025/050198

(22) International Filing Date:
18 March 2025 (18.03.2025)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10202400814V 21 March 2024 (21.03.2024) SG

(71) Applicant: **VFLOWTECH PTE LTD.** [SG/SG]; Block E 8 Cleantech Loop, #6-62, Singapore 637145 (SG).

(72) Inventors: **BHATTARAI, Arjun**; 47 Choa Chu Kang Loop, #10-16 The Warren, Singapore 689680 (SG). **GHIMIRE, Purna Chandra**; 510 Jurong West Street 52, #9-108 West Wood Court, Singapore 640510 (SG). **TAN, Ee Jet**; 29 Siglap Drive, Frankel Estate, Singapore 456155 (SG). **YONG, Wei jie**; Blk 31 Elias Road #14-22, Singapore 519934 (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, 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, UY, 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).

Declarations under Rule 4.17:

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

(54) Title: SYSTEM AND METHOD FOR REINSTATING THE VALANCE OF ELECTROLYTE IN VANADIUM REDOX FLOW BATTERIES

(57) Abstract: System and method for reinstating valance of electrolyte in vanadium redox flow batteries are provided Fructose is a viable reducing agent to reduce VO2 + to rebalance a vanadium redox flow battery system regardless of its size. Examples and techniques are provided that show that fructose reacts with VO2 + irreversibly and that given enough time, the reaction will go to completion. Thus, this will allow the imbalanced system to be balance precisely to the desired valance of vanadium electrolyte of V+3.5

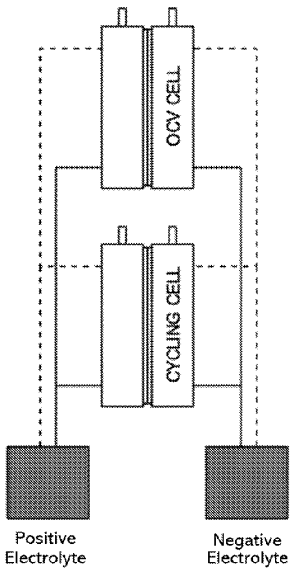


FIG. 3

WO 2025/198534 A1

[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))*