

Title (en)

A LIGNIN BASED REDOX FLOW BATTERY, A REDOX SPECIES, AND A METHOD FOR ITS MANUFACTURE

Title (de)

REDOX-FLOW-BATTERIE AUF LIGNINBASIS, REDOX-SPEZIES UND VERFAHREN ZU DEREN HERSTELLUNG

Title (fr)

BATTERIE À FLUX REDOX À BASE DE LIGNINE, ESPÈCE REDOX ET SON PROCÉDÉ DE FABRICATION

Publication

**EP 4272277 A1 20231108 (EN)**

Application

**EP 22710346 A 20220224**

Priority

- SE 2150263 A 20210308
- EP 2022054689 W 20220224

Abstract (en)

[origin: WO2022189162A1] Disclosed herein is a redox flow battery (RFB) comprising a lignin-based mixture, which is suitable for the positive side and obtained by reacting lignosulfonates under elevated temperatures in an aqueous alkaline solution with at least one oxidizing agent selected from the group consisting of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), chlorine dioxide (ClO<sub>2</sub>), and molecular oxygen (O<sub>2</sub>). The lignin-based mixture that is suitable for the negative side is obtained by a reaction of lignosulfonates in a hydrothermal autoclave at elevated temperatures and pressure over atmospheric. An advantage is that the starting material for making the electrolytes of RFB is very inexpensive and environmentally friendly. The mixture can be made in one step without additional reaction steps and can be used directly without further upgrading. The electrochemical reversibility and the storage capacity are good. A total organic RFB is possible.

IPC 8 full level

**H01M 8/1016** (2016.01); **H01M 8/18** (2006.01)

CPC (source: EP)

**H01M 8/1016** (2013.01); **H01M 8/188** (2013.01); **Y02E 60/50** (2013.01)

Citation (search report)

See references of WO 2022189162A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**WO 2022189162 A1 20220915**; EP 4272277 A1 20231108

DOCDB simple family (application)

**EP 2022054689 W 20220224**; EP 22710346 A 20220224