Title (en)

IMMOBILIZED SELENIUM, A METHOD OF MAKING, AND USES OF IMMOBILIZED SELENIUM IN A RECHARGEABLE BATTERY

Title (de)

IMMOBILISIERTES SELEN, VERFAHREN ZUR HERSTELLUNG UND VERWENDUNG VON IMMOBILISIERTEM SELEN IN EINER WIEDERAUFLADBAREN BATTERIE

Title (fr)

SÉLÉNIUM IMMOBILISÉ, PROCÉDÉ DE FABRICATION ET UTILISATIONS DE SÉLÉNIUM IMMOBILISÉ DANS UNE BATTERIE RECHARGEABLE

Publication

EP 3417502 A4 20191002 (EN)

Application

EP 17753807 A 20170216

Priority

- US 201662296286 P 20160217
- US 201662364113 P 20160719
- US 201662367314 P 20160727
- US 2017018110 W 20170216

Abstract (en)

[origin: WO2017143021A1] An immobilized selenium body, made from carbon and selenium and optionally sulfur, makes selenium more stable, requiring a higher temperature or an increase in kinetic energy for selenium to escape from the immobilized selenium body and enter a gas system, as compared to selenium alone. Immobilized selenium localized in a carbon skeleton can be utilized in a rechargeable battery. Immobilization of the selenium can impart compression stress on both the carbon skeleton and the selenium. Such compression stress enhances the electrical conductivity in the carbon skeleton and among the selenium particles and creates an interface for electrons to be delivered and or harvested in use of the battery. A rechargeable battery made from immobilized selenium can be charged or discharged at a faster rate over conventional batteries and can demonstrate excellent cycling stability.

IPC 8 full level

H01M 4/38 (2006.01); **H01M 4/13** (2010.01); **H01M 4/133** (2010.01); **H01M 4/136** (2010.01); **H01M 4/36** (2006.01); **H01M 4/62** (2006.01); **H01M 10/052** (2010.01)

CPC (source: EP KR)

H01M 4/0471 (2013.01 - KR); **H01M 4/13** (2013.01 - EP); **H01M 4/133** (2013.01 - EP KR); **H01M 4/134** (2013.01 - KR); **H01M 4/136** (2013.01 - EP); **H01M 4/1393** (2013.01 - KR); **H01M 4/1395** (2013.01 - KR); **H01M 4/364** (2013.01 - EP KR); **H01M 4/38** (2013.01 - EP KR); **H01M 4/583** (2013.01 - KR); **H01M 4/625** (2013.01 - EP); **H01M 10/052** (2013.01 - EP KR); **H01M 10/058** (2013.01 - KR); **H01M 50/40** (2021.01 - KR); C01P 2002/52 (2013.01 - KR); Y02E 60/10 (2013.01 - EP KR); Y02P 70/50 (2015.11 - EP KR)

Citation (search report)

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- See also references of WO 2017143021A1

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

DOCDB simple family (publication)

WO 2017143021 A1 20170824; CA 3012863 A1 20170824; CA 3012863 C 20230523; CA 3194423 A1 20170824; EP 3417502 A1 20181226; EP 3417502 A4 20191002; JP 2019510716 A 20190418; JP 2021007097 A 20210121; JP 2023022173 A 20230214; JP 6758391 B2 20200923; JP 7185669 B2 20221207; KR 102304885 B1 20210927; KR 102471212 B1 20221128; KR 102677354 B1 20240624; KR 20180114151 A 20181017; KR 20200130754 A 20201119; KR 20210118473 A 20210930; KR 20220143991 A 20221025

DOCDB simple family (application)

US 2017018110 W 20170216; CA 3012863 A 20170216; CA 3194423 A 20170216; EP 17753807 A 20170216; JP 2018540004 A 20170216; JP 2020146844 A 20200901; JP 2022188119 A 20221125; KR 20187026690 A 20170216; KR 20207032601 A 20170216; KR 20217029683 A 20170216; KR 20227034571 A 20170216