

Title (en)

ADVANCED LITHIUM (LI) ION AND LITHIUM SULFUR (LI S) BATTERIES

Title (de)

FORTSCHRITTLICHE LITHIUM-(LI)-IONEN- UND LITHIUM-SCHWEFEL-(LI S)-BATTERIEN

Title (fr)

BATTERIES AVANCÉES AU LITHIUM (LI) ION ET LITHIUM SOUFRE (LI S)

Publication

**EP 4049326 A1 20220831 (EN)**

Application

**EP 20880283 A 20200731**

Priority

- US 201962926225 P 20191025
- US 201962942103 P 20191130
- US 202016785076 A 20200207
- US 202016785020 A 20200207
- US 202016942305 A 20200729
- US 202016942266 A 20200729
- US 202016942229 A 20200729
- US 2020044488 W 20200731

Abstract (en)

[origin: WO2021080664A1] This disclosure provides a lithium (Li) ion battery that includes an anode, a cathode positioned opposite to the anode, a porous separator positioned between the anode and the cathode, and a liquid electrolyte in contact with the anode and the cathode. The anode includes an electrically conductive substrate. A first film is deposited on the electrically conductive substrate. The first film includes a first concentration of carbon particles in contact with each other and defines a first electrical conductivity for the first film. Each of the carbon particles includes a plurality of aggregates formed of few layer graphene sheets. The plurality of aggregates form a porous structure configured to undergo a lithiation, which can include any one or more of an intercalation operation or a plating operation. The anode and the cathode can include an electroactive material. The porous structure can provide conduction between the few layer graphene sheets.

IPC 8 full level

**H01M 4/13** (2010.01); **H01M 4/04** (2006.01); **H01M 4/134** (2010.01); **H01M 4/1395** (2010.01); **H01M 4/38** (2006.01); **H01M 4/62** (2006.01); **H01M 4/66** (2006.01); **H01M 4/80** (2006.01); **H01M 10/052** (2010.01)

CPC (source: EP KR)

**H01M 4/0404** (2013.01 - EP KR); **H01M 4/0459** (2013.01 - KR); **H01M 4/133** (2013.01 - EP KR); **H01M 4/134** (2013.01 - EP KR); **H01M 4/1395** (2013.01 - EP KR); **H01M 4/366** (2013.01 - EP KR); **H01M 4/386** (2013.01 - KR); **H01M 4/663** (2013.01 - EP KR); **H01M 4/667** (2013.01 - EP KR); **H01M 4/80** (2013.01 - EP KR); **H01M 10/052** (2013.01 - EP KR); **H01M 10/0562** (2013.01 - KR); **H01M 10/0566** (2013.01 - EP KR); **H01M 2004/021** (2013.01 - KR); **H01M 2004/027** (2013.01 - KR); **Y02E 60/10** (2013.01 - EP)

Citation (search report)

See references of WO 2021080664A1

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 2021080664 A1 20210429**; CN 114788039 A 20220722; EP 4049326 A1 20220831; KR 20220090508 A 20220629; TW 202125889 A 20210701

DOCDB simple family (application)

**US 2020044488 W 20200731**; CN 202080074644 A 20200731; EP 20880283 A 20200731; KR 20227012381 A 20200731; TW 109126228 A 20200803