Title (en)

THERMOCHEMICAL ENERGY STORAGE DEVICE

Title (de)

THERMOCHEMISCHER ENERGIESPEICHER

Title (fr)

ACCUMULATEUR D'ÉNERGIE THERMOCHIMIQUE

Publication

EP 4284891 A1 20231206 (DE)

Application

EP 22708270 A 20220126

Priority

- AT 500392021 A 20210126
- AT 2022060024 W 20220126

Abstract (en)

[origin: WO2022159998A1] The invention relates to a method for a reversible thermochemical storage and release of energy, wherein orthoboric acid is converted into boroxide, metaboric acid, or boroxide and metaboric acid by means of a water splitting process in order to store energy, and boroxide, metaboric acid, or boroxide and metaboric acid are converted into orthoboric acid by reacting with water in order to release energy. The reactions are carried out in a suspension medium, wherein orthoboric acid is provided in a suspended manner in the suspension medium in order to reversibly store energy of boric acid, and an energy source is used to bring the suspension medium with boric acid to a temperature at which the water splitting process is carried out; and boroxide and/or metaboric acid is provided in a suspended manner in the suspension medium for a reversible thermochemical release of energy. The suspension medium with boroxide and/or metaboric acid is reacted with water so that the reaction into orthoboric acid is carried out, and the heat resulting in the process is discharged to a heat load.

IPC 8 full level

C09K 5/16 (2006.01)

CPC (source: AT EP US)

C01B 35/1036 (2013.01 - AT); **C01B 35/1054** (2013.01 - AT US); **C09K 5/16** (2013.01 - AT EP US); **F28D 20/003** (2013.01 - AT US); Y02E 60/14 (2013.01 - EP)

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 2022159998 A1 20220804; AT 524576 A4 20220715; AT 524576 B1 20220715; CN 116917437 A 20231020; EP 4284891 A1 20231206; US 2024084184 A1 20240314

DOCDB simple family (application)

AT 2022060024 W 20220126; AT 500392021 A 20210126; CN 202280011924 A 20220126; EP 22708270 A 20220126; US 202218274434 A 20220126