

Title (en)

METHOD FOR OPERATING A FUEL CELL SYSTEM, AND FUEL CELL SYSTEM

Title (de)

VERFAHREN ZUM BETREIBEN EINES BRENNSTOFFZELLENSYSTEMS, BRENNSTOFFZELLENSYSTEM

Title (fr)

PROCÉDÉ DE FONCTIONNEMENT D'UN SYSTÈME DE PILE À COMBUSTIBLE, ET SYSTÈME DE PILE À COMBUSTIBLE

Publication

**EP 4193405 A1 20230614 (DE)**

Application

**EP 21754701 A 20210719**

Priority

- DE 102020209976 A 20200806
- EP 2021070093 W 20210719

Abstract (en)

[origin: WO2022028867A1] The invention relates to a method for operating a fuel cell system in which at least one fuel cell (1) is supplied with hydrogen via an anode path (2) and with oxygen via a cathode path, and in which anode exhaust gas exiting the fuel cell (1) is recirculated via a recirculation path (3), wherein steam contained in the anode exhaust gas is adsorbed by means of a zeolite container (4). According to the invention, the following steps are carried out in order to regenerate the zeolite container (4): a) separating the zeolite container (4) from the recirculation path (3) by closing at least one shut-off valve (5, 6) and/or switching a directional control valve (7), b) heating the zeolite container (4) by means of an electric heating device (8) such that previously adsorbed water is desorbed, and c) removing the desorbed water from the system by switching the directional control valve (7) again and/or by opening at least one flushing valve (9, 10). The invention additionally relates to a fuel cell system which is suitable for carrying out the method.

IPC 8 full level

**H01M 8/04119** (2016.01); **H01M 8/04089** (2016.01); **H01M 8/04223** (2016.01)

CPC (source: EP US)

**H01M 8/04037** (2013.01 - US); **H01M 8/04097** (2013.01 - EP US); **H01M 8/04171** (2013.01 - EP US); **H01M 8/04253** (2013.01 - EP); **H01M 8/04402** (2013.01 - US); **H01M 8/04462** (2013.01 - US); **H01M 8/04037** (2013.01 - EP); **H01M 8/04373** (2013.01 - EP); **H01M 8/04425** (2013.01 - EP); **Y02E 60/50** (2013.01 - EP)

Citation (search report)

See references of WO 2022028867A1

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)

**DE 102020209976 A1 20220210**; CN 116261793 A 20230613; EP 4193405 A1 20230614; JP 2023537314 A 20230831; US 2023299316 A1 20230921; WO 2022028867 A1 20220210

DOCDB simple family (application)

**DE 102020209976 A 20200806**; CN 202180057635 A 20210719; EP 2021070093 W 20210719; EP 21754701 A 20210719; JP 2023506295 A 20210719; US 202118040208 A 20210719