Title (en)
METHOD AND SYSTEM FOR CAPTURING CARBON DIOXIDE FROM THE AIR

Title (de)
VERFAHREN UND ANLAGE ZUR ABTRENNUNG VON KOHLENDIOXID AUS DER LUFT

Title (fr)
PROCÉDÉ ET SYSTÈME DE CAPTURE DE DIOXYDE DE CARBONE À PARTIR DE L'AIR

Publication
EP 4188583 A1 20230607 (DE)

Application
EP 20757834 A 20200728

Priority
EP 2020071255 W 20200728

Abstract (en)
[origin: WO2022022808A1] The invention relates to a method for capturing and recovering carbon dioxide from the ambient air, comprising the continuous performance of the following steps: a) bringing ambient air into contact with a basic aqueous solution; b) electrodialysing the solution using bipolar and and anion-selective ion exchanger membranes and recycling the depleted solution to step a); c) capturing the carbon dioxide from the solution enriched in step b) and recycling the resulting CO2-depleted solution to step b); characterised in that A) the absorption in step a) is performed Ai) in at least one absorber (01a) or Aii) in at least one open tank (01c) or Aiii) in a combination of at least one absorber (01a) and at least one open tank (01c); and/or B) the capture of the carbon dioxide from the solution enriched with (hydrogen) carbonate ions in step c) takes place Bi) by thermal desorption of the carbon dioxide by means of vapour extraction and/or Bii) by chemical reaction by converting the contained CO2 into a water-insoluble salt or a gas and simultaneous removal from the solution; and/or C) before the recycling to step a) or before the carbon dioxide is captured in step c) the pH value of the two solutions obtained in step b) is measured and each pH value is set to a predetermined value; with the proviso that, if the absorption does not take place according to Aiii) in at least one absorber (01a) and at least one tank (01c) but the carbon dioxide is captured according to Bi) by thermal desorption, the pH value is measured and set according to C).

IPC 8 full level
B01D 53/62 (2006.01); **B01D 53/78** (2006.01); **B01D 53/96** (2006.01); **B01D 61/44** (2006.01)

CPC (source: EP US)
B01D 53/62 (2013.01 - EP US); **B01D 53/78** (2013.01 - EP US); **B01D 53/965** (2013.01 - EP US); **B01D 61/423** (2022.08 - EP US); **B01D 61/445** (2013.01 - EP US); B01D 2251/30 (2013.01 - EP); B01D 2251/304 (2013.01 - EP); B01D 2251/306 (2013.01 - EP); B01D 2251/40 (2013.01 - EP); B01D 2257/504 (2013.01 - EP US); B01D 2258/06 (2013.01 - EP US); B01D 2311/2512 (2022.08 - EP US); B01D 2311/2626 (2013.01 - EP US); B01D 2325/42 (2013.01 - EP US); Y02A 50/20 (2017.12 - EP); Y02C 20/40 (2020.08 - EP)

Citation (search report)
See references of WO 2022022808A1

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 2022022808 A1 20220203; CA 3187519 A1 20220203; EP 4188583 A1 20230607; US 2023294043 A1 20230921

DOCDB simple family (application)
EP 2020071255 W 20200728; CA 3187519 A 20200728; EP 20757834 A 20200728; US 202018018452 A 20200728