

Title (en)

POROUS METAL MEMBRANE PRODUCED BY MEANS OF NOBLE GAS ION BOMBARDMENT

Title (de)

PORÖSE METALLMEMBRAN HERGESTELLT MITTELS EDELGASIONENBESTRAHLUNG

Title (fr)

MEMBRANE MÉTALLIQUE POREUSE FABRIQUÉE PAR BOMBARDEMENT D'IONS DE GAZ NOBLE

Publication

EP 2866923 A1 20150506 (DE)

Application

EP 13736514 A 20130628

Priority

- DE 102012105770 A 20120629
- EP 2013063670 W 20130628

Abstract (en)

[origin: WO2014001522A1] The present invention relates to a process for producing a porous metal membrane (pore size 10 nm and 1 µm), a metal membrane of this type, the use of the metal membrane and also corresponding filter modules. The porosity should be so high that it is significantly superior to the ion track process. Furthermore, the use of chemicals should be dispensed with where possible. The Pore size is 1-20 microns. According to the invention, the plasma immersion ion implantation process is utilized by bombarding a very thin metal foil with noble gas ions accelerated by means of a first accelerating voltage, in particular from both sides. The ion current is selected so that supersaturation occurs in the metal foil. Pores, in particular under the metal surface, are then formed by bubble segregation after supersaturation. Opening of the pores formed under the metal surface by ion implantation is effected by atomization of the surface by means of bombardment with noble gas ions using a second accelerating voltage which is lower than the first accelerating voltage.

IPC 8 full level

B01D 67/00 (2006.01); **B01D 71/02** (2006.01); **H01M 50/431** (2021.01)

CPC (source: EP US)

B01D 67/0053 (2013.01 - EP US); **B01D 67/006** (2013.01 - US); **B01D 71/022** (2013.01 - EP US); **B01D 71/0221** (2022.08 - EP US); **H01M 8/0289** (2013.01 - EP US); **H01M 50/431** (2021.01 - EP US); **B01D 2323/35** (2013.01 - EP US); **Y02E 60/10** (2013.01 - EP); **Y02E 60/50** (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

DOCDB simple family (publication)

DE 102012105770 A1 20140102; CN 104640618 A 20150520; EP 2866923 A1 20150506; US 2015196879 A1 20150716; WO 2014001522 A1 20140103

DOCDB simple family (application)

DE 102012105770 A 20120629; CN 201380032991 A 20130628; EP 13736514 A 20130628; EP 2013063670 W 20130628; US 201314411623 A 20130628