

## Title (en)

MANUFACTURING VAPOR CELLS THAT HAVE ONE OR MORE OPTICAL WINDOWS BONDED TO A DIELECTRIC BODY

## Title (de)

HERSTELLEN VON DAMPFZELLEN, DIE EIN ODER MEHRERE OPTISCHE FENSTER AUFWEISEN, DIE MIT EINEM DIELEKTRISCHEN KÖRPER GEBONDET SIND

## Title (fr)

FABRICATION DE CELLULES DE VAPEUR AYANT UNE OU PLUSIEURS FENÊTRES OPTIQUES LIÉES À UN CORPS DIÉLECTRIQUE

## Publication

**EP 4049042 A4 20221214 (EN)**

## Application

**EP 20879738 A 20200722**

## Priority

- US 201916659276 A 20191021
- US 201916659289 A 20191021
- CA 2020051009 W 20200722

## Abstract (en)

[origin: WO2021077204A1] In a general aspect, a method of manufacturing a vapor cell is presented. The method includes obtaining a dielectric body having a surface that defines an opening to a cavity in the dielectric body. The method also includes obtaining an optical window that includes a surface. The surfaces of the dielectric body and the optical window are altered to include, respectively, a first plurality of hydroxyl ligands and a second plurality of hydroxyl ligands. The method additionally includes disposing a vapor, or a source of the vapor, into the cavity. The altered surface of the dielectric body is contacted to the altered surface of the optical window to form a seal around the opening to the cavity. The seal includes metal-oxygen bonds formed by reacting the first plurality of hydroxyl ligands with the second plurality of hydroxyl ligands during contact of the altered surfaces.

## IPC 8 full level

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## CPC (source: EP)

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## Citation (search report)

- [XYI] US 2019186007 A1 20190620 - JACOBS SIMON JOSHUA [US], et al
- [XYI] EP 2546707 A2 20130116 - RICOH CO LTD [JP]
- [XYI] US 2015349791 A1 20151203 - NAKAJIMA TAKUYA [JP]
- [A] US 2007111471 A1 20070517 - OKADA MASUAKI [JP]
- [A] US 2011027930 A1 20110203 - EL-GAMAL MOURAD [CA], et al
- [A] "Handbook of Silicon Based MEMS Materials and Technologies", 22 February 2010, ELSEVIER SCIENCE & TECHNOLOGY BOOKS, ISBN: 978-0-81-551594-4, article ARI LEHTO ET AL: "PART V Encapsulation of MEMS Components", pages: 499 - 616, XP055750042
- [A] TOMMI SUNI: "Direct wafer bonding for MEMS and microelectronics", DISSERTATION FOR THE DEGREE OF DOCTOR OF SCIENCE IN TECHNOLOGY TO BE PRESENTED WITH DUE PERMISSION OF THE DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING, FOR PUBLIC EXAMINATION AND DEBATE IN AUDITORIUM V1 AT HELSINKI UNIVERSITY OF TECHNOLOGY, 1 January 2006 (2006-01-01), FI, pages 1 - 140, XP055512373, ISBN: 978-951-38-6851-2, Retrieved from the Internet <URL:https://www.vtt.fi/inf/pdf/publications/2006/P609.pdf>
- See also references of WO 2021077204A1

## 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)

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## DOCDB simple family (application)

**CA 2020051009 W 20200722**; CA 3154731 A 20200722; EP 20879738 A 20200722; JP 2022519168 A 20200722