

Title (en)

METHOD AND DEVICE FOR DETECTING TRACE AMOUNTS OF MANY GASES

Title (de)

VERFAHREN UND VORRICHTUNG FÜR DEN NACHWEIS VON SPURENMENGEN EINER GROSSEN ANZAHL VON GASEN

Title (fr)

PROCEDE ET DISPOSITIF DE DETECTION DE TRACES DE GAZ MULTIPLES

Publication

EP 2596331 A1 20130529 (FR)

Application

EP 11752269 A 20110721

Priority

- FR 1055954 A 20100721
- FR 2011051766 W 20110721

Abstract (en)

[origin: WO2012010806A1] The photoacoustic device for measuring the amount of at least one gas comprises: a Helmholtz resonant cell (14, 114, 214, 314A, 314B), consisting of at least two tubes closed at their ends and connected together, close to each of their ends, by capillary tubes having a diameter smaller than the diameter of the parallel tubes, and a means (15, 55) for introducing a gas into said cell. This device further includes: at least two physically separate radiant laser energy sources (11A, 11B, 215) each designed to deliver excitation energy to the gas contained in the cell, a different emission wavelength corresponding to a local maximum absorption wavelength for said gas, each said radiant energy source being positioned facing a window (52) closing off one end of the tube; a modulation means (17), which modulates the excitation energy delivered by each of the laser energy sources with a modulation frequency corresponding to the acoustic resonant frequency of the resonant cell; and at least one acoustic-electric transducer (20, 21) placed on one of the tubes so as to detect the acoustic signals produced in this tube and deliver an electrical signal representative of the concentration of the gas in the cell.

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

See references of WO 2012010806A1

Citation (examination)

GROSSEL A ET AL: "New improvements in methane detection using a Helmholtz resonant photoacoustic laser sensor: A comparison between near-IR diode lasers and mid-IR quantum cascade lasers", SPECTROCHIMICA ACTA. PART A: MOLECULAR AND BIOMOLECULAR SPECTROSCOPY, ELSEVIER, AMSTERDAM, NL, vol. 63, no. 5, 1 April 2006 (2006-04-01), pages 1021 - 1028, XP028036060, ISSN: 1386-1425, [retrieved on 20060401], DOI: 10.1016/J.SAA.2005.11.002

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