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Heated Dynamic Headspace Sampling Device for Volatile Organic Compounds (VOCs) from a Surface

Tech ID: 33737 / UC Case 2024-536-0

ABSTRACT

Researchers at the University of California, Davis have developed a technology that offers a sophisticated solution for collecting and measuring gas emissions from surfaces, particularly skin, with high sensitivity and specificity.

FULL DESCRIPTION

The technology encompasses devices, systems, and methods designed for the collection and measurement of gas emissions from a surface. It is particularly focused on capturing volatile organic compounds (VOCs) emitted from the skin, which can serve as biomarkers for various diseases and conditions. The technology addresses the challenges of sampling skin-emitted VOCs, including their low concentration and the influence of various factors on emission patterns, by providing a device that can be coupled with the skin surface to collect gas emissions efficiently and a system for analyzing these emissions with high sensitivity.

APPLICATIONS

- ▶ Healthcare diagnostics for identifying biomarkers for diseases and conditions.
- ▶ Research in understanding the composition of gas mixtures emitted from the skin.
- ▶ Environmental monitoring by detecting and analyzing VOCs in various settings.
- ▶ Industrial and medical manufacturing processes that require gas analysis.

FEATURES/BENEFITS

- ▶ Enables the collection of gas emissions directly from the skin surface.
- ▶ Incorporates a heater and temperature sensor to optimize the collection process.
- ▶ Designed for high sensitivity and specificity in detecting VOCs.
- ▶ Can be used in a wearable format, enhancing patient comfort and compliance.
- ▶ Facilitates real-time or near-real-time analysis of gas emissions.
- ▶ Overcomes the methodological and technical challenges of sampling skin-emitted VOCs.
- ▶ Addresses the issue of low VOC concentration levels emitted from the skin.
- ▶ Eliminates the need for complex analytical techniques and multiple sample collections.
- ▶ Makes VOC sampling accessible outside of laboratory or hospital settings.

PATENT STATUS

Patent Pending

CONTACT

Byron N. Roberts
bnroberts@ucdavis.edu
tel: 530-754-8689.



INVENTORS

- ▶ Davis, Cristina E.
- ▶ Gibson, Patrick
- ▶ Herve, Flore
- ▶ Kenyon, Nicholas J.
- ▶ McCartney, Mitchell M.

OTHER INFORMATION

KEYWORDS

diagnosis, dynamic
headspace, medical
devices, sampling, skin,
volatile organic compounds
(VOCs)

CATEGORIZED AS

- ▶ **Engineering**
 - ▶ Engineering
 - ▶ Other
- ▶ **Medical**
 - ▶ Devices
 - ▶ Diagnostics
 - ▶ Other
 - ▶ Research Tools
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University of California, Davis
Technology Transfer Office
1850 Research Park Drive, Suite 100, ,
Davis, CA 95618

Tel: 530.754.8649
techtransfer@ucdavis.edu
<https://research.ucdavis.edu/technology-transfer/>
Fax: 530.754.7620

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