

Method for Sensing and Classification of Molecules Using Porous Optical Films

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TECHNOLOGY DESCRIPTION

University researchers have developed methods of sensing and identifying vapor analytes based on temperature cycling of an optically interrogated porous optical film sensor. For example, the hysteresis in the temporal response of the photonic stop band from an oxidized porous silica chemical sensor distinguishes between the analytes isopropanol, heptane, and cyclohexane. The discrimination capability is attributed to diffusion and adsorption processes that are characteristic of the analyte/surface interaction, similar to a temperature programmed desorption or a chromatographic experiment. The field of the invention is multi-component chemical sensing and gas analysis with applications in environmental monitoring, homeland security, general research/industry, niche uses, e.g., smoke detection, breath analysis, etc.

INTELLECTUAL PROPERTY INFO

This invention has a patent pending and is available for licensing.

RELATED MATERIALS

- [Detection of Pure Chemical Vapors in a Thermally Cycled Porous Silica Photonic Crystal Langmuir, 2011, 27 \(13\), pp 8576-8585](http://pubs.acs.org/doi/abs/10.1021/la201095x)
<http://pubs.acs.org/doi/abs/10.1021/la201095x> - 06/02/2011

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,007,593	04/14/2015	2009-198

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OTHER INFORMATION

KEYWORDS

porous silicon, chemical sensing, gas
analysis, volatile organic compounds
(VOC)

CATEGORIZED AS

- **Sensors & Instrumentation**
- Analytical

RELATED CASES

2009-198-0