

Rapid and Low-cost Sensor for Measuring Volatile Compounds in Nuts and Oils

Tech ID: 33540 / UC Case 2022-588-0

ABSTRACT

Researchers at the University of California, Davis have developed a sensor for measuring food spoilage of nuts, seeds, and oils. It measures volatile organic compounds as a biomarker of food spoilage through a simple device in only three minutes.

FULL DESCRIPTION

Over a third of the world's food supply is wasted, with the United States and Europe responsible for approximately 60% of all food waste. Studies estimate that reducing spoilage by 50% could save the global industry up to \$300 billion annually.

Researchers at the University of California, Davis have developed a method of measuring lipid oxidation as a biomarker of food spoilage in nuts, seeds, and oils. It measures total volatile organic compounds (TVOC) with a metal-oxide (MOX) sensor and a microcontroller. The device tracks the rate of increase of TVOC concentration versus a sample's weight.

APPLICATIONS

- ▶ A nondestructive gas sensor that detects food spoilage of nuts, seeds, and oils via lipid oxidation for use within food processing plants and distribution centers.

FEATURES/BENEFITS

- ▶ Rapid detection of lipid oxidation in three minutes compared to existing commercial methods of 45 minutes.
- ▶ A simple and inexpensive device that can be easily integrated within existing food processing and storage facilities.
- ▶ Helps reduce spoilage and associated costs while increasing the food supply.

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	WO 2023/211862	11/02/2023	2022-588

Additional Patent Pending

CONTACT

Eugene Sisman
esisman@ucdavis.edu
tel: 530-754-7650.



INVENTORS

- ▶ Mitcham, Elizabeth
- ▶ Reitz, Nicholas

OTHER INFORMATION

KEYWORDS

sensor, food spoilage,
agriculture, food
processing, nuts, seeds,
oils

CATEGORIZED AS

- ▶ **Agriculture & Animal Science**
 - ▶ Devices
 - ▶ Other
 - ▶ Processing and Packaging
- ▶ **Sensors & Instrumentation**
 - ▶ Other

RELATED CASES

2022-588-0

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

© 2024, The Regents of the University of California
[Terms of use](#)
[Privacy Notice](#)