Method For Rapid In Situ Detection Of Ammonia

Tech ID: 32326 / UC Case 2020-658-0

CONTACT

Edward Hsieh
hsiehe5@uci.edu
tel: 949-824-8428.

INVENTORS

- Asset, Tristan
- Atanassov, Plamen
- Chen, Yechuan
- Fishman, Dmitry
- Liu, Yuanchao

OTHER INFORMATION

CATEGORIZED AS

- **Environment**
  - Sensing
- **Materials & Chemicals**
  - Other
- **Research Tools**
  - Screening Assays
- **Sensors & Instrumentation**

» Environmental Sensors

» Process Control

BRIEF DESCRIPTION

This invention, a simple and robust method for ammonia detection, offers high-speed in situ quantification of ammonia concentrations with high sensitivity. The ammonia detection system does not require complex instrumentation, analysis, or labeling, which would allow for widespread adoption in chemistry-based fields and surrounding disciplines.

RELATED CASES

2020-658-0

SUGGESTED USES

- High-speed, in situ detection of ammonia concentration.
- Environmental monitoring
- Wastewater treatment
- Agriculture and aquaculture
- Food analysis
- Biomedical research

FEATURES/BENEFITS

- Speed: capacity for fast, real-time chemical characterization in situ. with integration time of one second
- Sensitivity: detection down to 10ppm
- Cleanliness: extremely localized, preventing contamination from environment.
- Reusability: substrate can be used multiple times.
- Simplicity: substrates are commercially available – would not have to rely on complex manufacturing.

TECHNOLOGY DESCRIPTION

Researchers at the University of California, Irvine invented a surface-enhanced Raman non-contact technique, which operates without having to alter the sample and allows for high speed in situ ammonia detection in liquids. It has higher sensitivity than “real-time” techniques in liquid such as real-time Ion-Selective Electrodes and is reusable, unlike dry calorimetry.

STATE OF DEVELOPMENT

Prototype has been developed and validated for efficacy, achieving a sensitivity of 10 ppm with a 1 second integration time.

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	WO 2021/226347	11/11/2021	2020-658

Additional Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Acid-Free Synthesis of Electrocatalyst Technology

UCI Beall
Applied Innovation

5270 California Avenue / Irvine,CA
92697-7700 / Tel: 949.824.2683