Method For Rapid In Situ Detection Of Ammonia

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OTHER INFORMATION

CATEGORIZED AS

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

» Environmental Sensors

» Process Control

RELATED CASES

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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.

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	Reference for National Filings	WO 2021/226347	11/11/2021	2020-658

Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Acid-Free Synthesis of Electrocatalyst Technology

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