

# BIODEGRADABLE POTENTIOMETRIC SENSOR TO MEASURE ION CONCENTRATION IN SOIL

Tech ID: 32471 / UC Case 2022-008-0

## PATENT STATUS

Patent Pending

## BRIEF DESCRIPTION

The inventors have developed ion-selective potentiometric sensors for monitoring soil analytes with naturally degradable substrate, conductor, electrode, and encapsulant materials that minimize pollution and ecotoxicity. This novel sensor-creation method uses printing technologies for the measurement of nitrate, ammonium, sodium, calcium, potassium, phosphate, nitrite, and others. Monitoring soil analytes is key to precision agriculture and optimizing the health and growth of plant life.

## SUGGESTED USES

These sensors can be used for applications such as, but not limited to, soil health monitoring, agricultural growth predictions, analyte flux measurements, greenhouse gas production, and chemical leeching/runoff.

## ADVANTAGES

These soil analysis sensors:

- » can be produced at scale
- » can selective target ions of interest
- » are inexpensive
- » are simple to fabricate
- » are easy to read
- » are environmentally friendly

## RELATED MATERIALS

### ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Printed All-Organic Reflectance Oximeter Array
- ▶ Scalable And High-Performance Pressure Sensors For Wearable Electronics
- ▶ Pulse Oximeter Using Ambient Light

## CONTACT

Craig K. Kennedy  
[craig.kennedy@berkeley.edu](mailto:craig.kennedy@berkeley.edu)  
tel: .



## INVENTORS

- » Arias, Ana Claudia

## OTHER INFORMATION

### KEYWORDS

precision agriculture, flexible  
electronics, chemical sensors, ion  
selective membrane, definitive  
screening design, potentiometric  
sensors, nitrate sensors, agriculture  
sensors

### CATEGORIZED AS

- » Agriculture & Animal Science
- » Devices
- » Environment
- » Sensing
- » Sensors & Instrumentation
- » Environmental Sensors
- » Materials & Chemicals
- » Agricultural

### RELATED CASES

2022-008-0

- ▶ [A Potentiometric Mechanical Sensor](#)
- ▶ [Simultaneous Doctor Blading Of Different Colored Organic Light Emitting Diodes](#)
- ▶ [Organic Multi-Channel Optoelectronic Sensors For Smart Wristbands](#)
- ▶ [Printed Organic Leds And Photodetector For A Flexible Reflectance Measurement-Based Blood Oximeter](#)



**University of California, Berkeley Office of Technology Licensing**

2150 Shattuck Avenue, Suite 510, Berkeley, CA 94704

Tel: 510.643.7201 | Fax: 510.642.4566

[ipira.berkeley.edu/](http://ipira.berkeley.edu/) | [otl-feedback@lists.berkeley.edu](mailto:otl-feedback@lists.berkeley.edu)

© 2021, The Regents of the University of California

[Terms of use](#) | [Privacy Notice](#)