OXYGEN SENSOR USING ZINC AIR BATTERY CHEMISTRY

Tech ID: 33782 / UC Case 2025-046-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

There is a need for robust and reliable electrochemical oxygen sensing, particularly in ambient environments. This innovation, developed by UC Berkeley researchers, addresses this opportunity by providing electrochemical sensors and methods for oxygen sensing using zinc-air battery chemistry. The sensor is a compact electrochemical cell that utilizes an anode (comprising a substrate and a current collector), a cathode (comprising a gas permeable substrate and a current collector), and a separator containing an electrolyte positioned between them. An electronic unit electrically couples the anode and cathode and is configured to receive electrical signals indicative of the oxygen level in the ambient environment. This system offers a novel, potentially cost-effective and efficient approach to oxygen measurement compared to conventional sensing technologies.

SUGGESTED USES

- Monitoring ambient oxygen levels in industrial or environmental settings
- Integration into process control systems for managing oxygen-sensitive processes
- Use in medical devices for oxygen monitoring
- Deployment as an environmental sensor for atmospheric or confined space analysis
- Application in scientific/research tools requiring precise oxygen measurements

ADVANTAGES

- Utilizes zinc-air battery chemistry for oxygen sensing, offering a unique and potentially energy-efficient approach
- Involves a compact electrochemical cell design with an anode, a gas permeable cathode, and an electrolyte-containing separator
- Includes an electronic unit configured to provide an electrical signal indicative of the ambient oxygen level

RELATED MATERIALS

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

» **Energy**
» Storage/Battery
» **Materials & Chemicals**
» Chemicals
» **Sensors & Instrumentation**
» Analytical
» Environmental Sensors
» Medical
» Other
» Physical Measurement
» Process Control
» Scientific/Research

RELATED CASES

2025-046-0

- Printed All-Organic Reflectance Oximeter Array
- Biodegradable Potentiometric Sensor to Measure Ion Concentration in Soil
- Scalable And High-Performance Pressure Sensors For Wearable Electronics
- Pulse Oximeter Using Ambient Light
- 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

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