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Solid Contact Electrochemical Sensor (20140304, Dr. Philippe Buhlmann)

IP Status: Issued US Patent; **Application #:** 14/716,564

Low-cost Ion Selective Electrode with Solid Contact

A new type of solid-contact ion-selective electrode (ISE) introduces low-cost colloid-imprinted mesoporous (CIM) carbon material as the solid contact. The CIM carbon, which is inexpensive and easy to manufacture, acts as an intermediate layer between a gold electrode and an ionophore-doped ISE membrane. The CIM carbon's open and interconnected pore texture offers significantly higher capacitance than current technology.

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Technology ID
20140304

Category
Engineering & Physical Sciences/Chemicals
Engineering & Physical Sciences/Instrumentation, Sensors & Controls

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Electrochemical Sensor Requires Little Calibration

The new sensor requires minimal calibration. This benefit is due to a redox couple incorporated into the ISE, yielding a standard deviation of E° as low as 0.7 mV. In addition, the CIM carbon's high purity, hydrophobic characteristics and low number of redox-active functional groups give the ISE excellent potential stability and resistance to light, oxygen, carbon dioxide and water interference.

BENEFITS AND FEATURES OF SOLID CONTACT ELECTROCHEMICAL SENSOR:

- Requires minimal calibration
- Excellent resistance to interference from light, oxygen, carbon dioxide and water
- Long-term stability and excellent reproducibility
- Colloid-imprinted mesoporous (CIM) carbon is inexpensive and easy to manufacture
- Open and interconnected CIM carbon pore structure leads to higher capacitance

Phase of Development - Prototype Development

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