

The Evolution Of High Temperature Electrochemical Gas Sensors

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Gas sensor technology based on high temperature solid electrolytes is maturing rapidly. Recent advances in metal oxide catalysis and thin film materials science has enabled the design of new electrochemical sensors. We have demonstrated prototype amperometric oxygen sensors, nernstian potentiometric oxygen sensors that operate in high sulfur environments, and hydrocarbon and carbon monoxide sensing mixed potential sensors. Many of these devices exhibit part per million sensitivities, response times on the order of seconds and excellent long-term stability. We have also developed electro-kinetic models to describe mixed potential sensor response.