

## gas sensing electrode

A sensor composed of an indicator and a reference electrode in contact with a thin film of solution which is separated from the bulk of the sample solution by a gas-permeable membrane or an air gap. This intermediate solution interacts with the gaseous species (penetrated through the membrane or an air gap) in such a way as to produce a change in a measured constituent (e.g. the  $H^+$  activity) of the intermediate solution. This change is then sensed by the ion-selective electrode and is related to the partial pressure of the gaseous species in the sample. [Note: In electrochemical literature the term gas electrode is used for the classical, redox-equilibrium-based gas electrodes as well, such as the hydrogen or the chlorine gas electrodes ( $Pt(s)|H_2(g)|H^+(aq)$  or  $Pt(s)|Cl_2(g)|Cl^-(aq)$ ]. These electrodes respond both to the partial pressure of the gas ( $H_2$  or  $Cl_2$ ) and to the ionic activities ( $H^+$  or  $Cl^-$ ). The Clark oxygen electrode fits under this classification although, in contrast to other gas sensors, it is an amperometric and not a potentiometric device.

### **Source:**

PAC, 1994, 66, 2527 (*Recommendations for nomenclature of ionselective electrodes (IUPAC Recommendations 1994)*) on page 2534