

*DEMOX a miniature optical oxygen sensor*



DEMOX – Molecular oxygen is a prerequisite for the life of most animal and plant cells. Since both respiration and photosynthesis are vital for cells and tissues, measurement and control of oxygen consumption and production is of particular importance in the life sciences. Traditionally, oxygen concentration is measured electrochemically, while more recently optical sensors have become more widely used. The working principle of these optical sensors is based on selective quenching of the luminescence of dyes in the presence of oxygen.

CSEM's optical oxygen sensors are based on the functionalization of thin mesoporous silica-based films with selective dye indicators. They can be glued to the inner surface of disposable transparent tissue culture flasks, tubes, bottles, bags, test plates, dishes or bioreactors and the oxygen concentration can be measured non-invasively through the wall of the container, thus avoiding sample contamination.

Originally developed to monitor dissolved oxygen in real time in cell and tissue cultures, the DEMOX optical reader is a versatile device that enables oxygen measurements for many different applications. It can be used to assess air and water quality as well as to support process control of food and beverages. This extra compact device has been designed and packaged in a format very similar to a microscope objective. It can be directly mounted on most of microscopes that are regularly used in biology. The microscope facilitates alignment between sensors and reader while ensuring a stable and constant optical environment. The Demox reader allows the rapid, efficient and non-invasion measurements of oxygen concentration in a wide range of environments.

The solution is highly customizable.



Feel free to contact us.