ocean optics product points

RedEye™ Oxygen Sensing

Innovative RedEye Oxygen Patch for O2 Sensing in Packaging

The RedEye indicator patch measures oxygen non-invasively in sealed packaging and containers used in medical, pharmaceutical and food and beverage applications. Using a combination of proprietary sensing material and optical sensing technologies, this noninvasive patch enables quick readings of the presence or absence of oxygen, as well as quantitative measurements. Accurate measurement of oxygen concentration can have critical implications in medical and pharmaceutical applications–it can assure patient safety in point of care analysis and respiratory settings or indicate a sterile seal on surgical instruments and drug packaging.

The RedEye can be integrated into packaging for continuous monitoring or used externally for post-production and R&D monitoring purposes. Depending on the application, the simple presence of oxygen can be visually determined by color change with a handheld LED, or a fluorometer can be used to directly measure the exact oxygen level.

RedEye Features a Unique Sol Gel Coating

RedEye patches are unique in that high-performance sol gel coatings are used rather than polymer membranes. Sol gel provides better thermal and mechanical stability, superior chemical compatibility, and faster response time. RedEye coatings are capable of monitoring low levels of oxygen in gas (to 0.005%) and dissolved oxygen in liquids (to 20 ppb), as well as the higher oxygen levels present in cell culture and respiratory monitoring.

Customers can specify either of the following coating formulations, depending on their measurement needs:

FOXY coating – A good general-purpose solution designed for benign gases, liquids and gels.

HIOXY coating – Designed to monitor oxygen in nonaqueous vapors and solutions and is ideal for use with oils and alcohols. No other oxygen sensor on the market today can be used in alcohols.

The patch has no set diameter size; every order is manufactured to customer specifications. Typical diameter sizes vary from a few millimeters to several centimeters.

Typical Applications

- Point of care analysis (i.e. disposable oxygen attachments for ventilators used during anesthesia operation)
- Blood bag analysis
- Beverage and food packaging
- Bio process control
- Cell culture monitoring

Ocean Optics Inc. First in Photonics™
www.oceanoptics.com | info@oceanoptics.com | 727-733-2447

ocean optics product points

RedEye™ Oxygen Sensing

Specification	Dissolved Oxygen in H_2O	Oxygen Gas (at 1 atmosphere)
Sensor mechanism	Phase shift due to change in partial pressure of O_2	
Dynamic range	0-120 ppm	1-300% O_2 (mole percent)
	0-3 atm oxygen pressure	
Response time (standard)	~ 1 second	
Response time (w/overcoat)	30-50 seconds	20-30 seconds
Temperature	Temperature sensor and software-supported compensation	
Temperature range	0 º C to 50º C	
Chemical compatibility of coating	Unaffected by pH change or salinity Not recommended with strong bases (pH > 10), styrene, ethanol, liquid acetone, HF and BTX solvents	
Resolution	0.02 ppm at room temperature	0.05% (0.04 mmHg) at room temperature
Calibration	Standard 2-point calibration (linear fit) Multipoint calibration (2nd order polynomial fit) for improved accuracy and broad dynamic range applications Single-temperature, single-point calibration using factory-calibrated FOXY patches	
Accuracy (0-20% O_2, 0-50º C)	5% of reading within 10 º C differential (using 2nd order polynomial fit to multipoint calibration)	
Lowest detectable limit	0.02 ppm	0.05% (0.4 mm Hg)

Ocean Optics Inc.
First in Photonics™
www.oceanoptics.com | info@oceanoptics.com | 727-733-2447