

RedEye Optical Sensing Patches

Self-adhesive Patches for Non-intrusive Oxygen Measurements

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 non-invasive patch enables quick determination of the presence of oxygen, as well as quantitative measurements. Accurate measurement of oxygen concentration can have critical implications in medical and pharmaceutical applications. Oxygen monitoring can also ensure patient safety in point-of-care analysis and respiratory settings or indicate a sterile seal on surgical instruments and drug packaging.



RedEye Features a Proprietary 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 0.01%) and dissolved oxygen in liquids (to 4 ppb), as well as the higher oxygen levels present in cell culture and respiratory monitoring.

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. A fluorometer can also be used to directly measure oxygen partial pressure.

Typical Applications

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

RedEye Oxygen Sensing Patch Specifications

Specifications	FOXY Formulation	FOSPOR Formulation	HIOXY Formulation
Recommended use:	General purpose coating	High-sensitivity coating for low-oxygen environments	Robust coating for hydrocarbon-rich environments
O2% range (at 1 ATM):	0-100%	0-10%	0-20%
DO range (ppm at 1 ATM):	0-40 ppm	0-4 ppm	0-8 ppm
Temperature range:	0 °C to +60 °C for patches	0 to +60 °C for patches	0 °C to +60 °C for patches
O2% resolution:	0.05% (at 20 s averaging)	0.01% (at 30 s averaging)	0.05% (at 20 s averaging)
DO resolution (at room temp):	20 ppb	4 ppb	20 ppb
O2% accuracy:	5% of reading	5% of reading	5% of reading
DO accuracy:	5% of reading	5% of reading	5% of reading
Min. detectable level:	0.1% O2	0.01% O2 (at 30 s averaging)	0.1% O2
Min. detectable level in water (at room temp):	40 ppb	4 ppb	40 ppb
Response time:	<1 s in gas ~30-45 s with overcoating in gas ~45 s in pure water	30-60 s ~60-90 s with overcoating in gas ~60-90 s in pure water	<1 s in gas ~30 s ~30-45 s in pure water
Patch material:	Acrylate	Acrylate	Acrylate
Patch dimensions:	4 mm, 8 mm and 127 mm disk (standard); custom sizes also available	4 mm, 8 mm and 127 mm disk (standard); custom sizes also available	4 mm, 8 mm and 127 mm disk (standard); custom sizes also available
Standard patch options:	Single patch or pack of 5	Single patch or pack of 5	Single patch or pack of 5
Patch-cuvette options:	Patch applied to quartz or polystyrene cuvettes	Yes	Yes
Overcoat option:	Medical-grade overcoat	Medical-grade overcoat	Medical-grade overcoat
Adhesive pH compatibility:	Yes (pH 4.0-10.0)	Yes (pH 4.0-10.0)	Yes (pH 4.0-10.0)