OpTech® - O2 Platinum

Versatile | Innovative | Easy-to-use

Optical Fluorescence O₂ Analyzer for Measuring Headspace, Dissolved Oxygen, Oxygen Permeation and Package Leak
The ideal multi-purpose analyzer – versatile, innovative and easy-to-use.

OpTech\textsuperscript{®}-O\textsubscript{2} Platinum. - measure headspace, dissolved oxygen, package leak, and oxygen permeation using optical fluorescence technology.

The ideal multi-purpose analyzer for food, beverage, pharmaceutical and medical applications where measuring oxygen and understanding its effect on product and product shelf life is critical.

### Headspace - Leak Detection - Package Permeation

**Sensor types:**

The adhesive sensor requires no preparation and is designed to be inserted into the package where it is immediately available for use. Testing is conducted through the package wall. The adhesive sensor is available in permanent or reusable versions and can also be used to measure dissolved oxygen.

The ImPULSE\textsuperscript{™} sensor is designed to be inserted into retort and opaque packages, enabling the OpTech to monitor the headspace or dissolved oxygen. As the sensor is non-consuming, the ImPULSE is ideal for long term testing of multiple packages.

The OpTech needle with the sensor in the tip is designed to monitor dissolved oxygen or headspace gases in limited volume packages. To measure, simply place the tip of the needle into the headspace, and press the activation button. No gases are extracted.

### Film Permeation

The OpTech-O\textsubscript{2} Film Permeation Cell allows for oxygen transmission rate testing of medium and high transmission rate films including real transmission rates of perforated films as used in fresh produce applications.

#### OpTech-O\textsubscript{2} Applications

- Non-destructive shelf life analysis
- Film permeation (including perforated films)
- Package permeation
- Headspace (invasive and non-destructive)
- Dissolved Oxygen
- Total Package Oxygen (TPO)
- Gross Leak
Useful for food, beverage, pharmaceutical and medical applications.

Software Features

- Unlimited number of concurrent tests
- Continuously monitor O₂ in real time
- One graph - percentage O₂ and transmission rate versus time
- Headspace values with pass/fail limits
- Advanced calibration for wines and spirits, provides increased accuracy at different alcohol % levels
- Bar code system automatically retrieves previous sample data
- Built-in temperature and barometric pressure compensation

Option:
CFR 21 Part 11 compliant

The versatile OpTech-O₂ provides accurate results, simply and effectively

- Oxygen permeation rates of multiple packages or films
- Determine product shelf life for an oxygen sensitive product
- Perform quality control of MAP packages right off the production line (including packages with very limited headspace)
- Conduct transportation and distribution studies
- Understand the effects of total package oxygen including package headspace as well as dissolved oxygen in a liquid product
- Detect packages with gross leaks
- Testing does not consume oxygen - ideal for long term oxygen studies

Portability with Tablet (optional)

Flexible USB cable - no bulky optic cables that break easily

Ergonomic shape to fit left or right hand

Visible, non-UV light source for simple, targeted reading

Sensor types:
Measure oxygen and understand the effects on products and shelf life.

Calibration Solved Beautifully

Trust MOCON to come up with a break-through method of simple calibration for the OpTech-O2. Just select “Calibrate” in the software menu or read the bar code on the CalCard, take a reading of “0%”, then “Air” and you’re done, it’s as simple as that! No gasses needed and one calibration works for all sensors. To calibrate the OpTech-O2 needle, use the CalVial™.

Optional Permeation Test Cell

Ideal for testing transmission rates of medium and high transmission rate films, including real transmission rates of perforated films as used in fresh produce applications.
OpTech® - O2 Platinum Advantages

- Ergonomic
- No bulky fiber optic cables
- Lightweight and portable (with Portability Kit)
- Reusable, easy to place sensors – no glues needed
- One calibration for all sensors
- No gas calibration needed

- Robust invasive needle, no headspace extraction - designed for limited headspace
- Visible, non-UV light source for simple, targeted reading
- Accurate readings through colored packaging material
- ImPULSE™ sensor for opaque packaging materials
- Packaging oriented software package

Barometric pressure sensor – compensates for changes in pressure

IR sensor - built in detection of package temperature
Activation Button
Printed circuit board
Flexible USB cable - connects to computer or tablet containing the OpTech software

Designed to ergonomically fit the hand - can be used comfortably with either left or right hand

LED - sends light to excite the sensor
Photo detector - receives the signal from the sensor

Interchangeable optical adapter - simply unscrew to fit invasive needle for limited headspace testing

Dichroic beamsplitter - enables both sending LED light and receiving signal from sensor

OpTech®-O2 Platinum Specifications

- Dissolved Oxygen Range 0.006mg/L to 10.5mg/L
- Warm-up time 20 minutes
- Repeatability (Certified) +/- 0.015% (150 ppm) O2 or 2% of reading, whichever is greater
- Application Sensor in needle must be 100% in volume
- Operating humidity 0-100% Sensors are designed to be immersed
- Operating temperature 5 – 40 C
- Adhesion Sensors come ready to apply
- Warm up time None
- Repeatability Adhesive (Certified) +/- 0.015% (150 ppm) O2 or 3% of reading, whichever is greater
- ImPLUSE: Sensor is external
- Application Adhesive: Sensor is inside package
- Adhesive and ImPULSE Sensors
- Compliance CE/CSA/UL
- Operating humidity 0-100% non-condensing
- Operating temperature 10-35˚C
- Power Standard Power USB port (2.5 watt)
- Measurement method Epifluorence Confocal
- Depth: 10” 25.40 cm
- Height: 2.7” 6.8 cm
- Base dimensions Width: 4.8” 12.19 cm
- Depth: 9” 22.86 cm (with needle), 6” 15.24 cm (without needle)
- Detector dimensions Width: 1.3” 3.30cm
- PDF report options Through program from computer
- Compliance CE/CSA/UL
- Operating humidity 0-100% non-condensing. Needle must not get wet
- Operating temperature 5 – 40 C
- Warm up time None
- Repeatability ImPULSE (Certified) +/- 0.05% (500 ppm) O2 or 3% of reading, whichever is greater
- Range Adhesive 0.001% (10 ppm) to 25% O2 Permeation Mode
- Accuracy  +/-150ppm
- CalVial™ Accuracy  +/-2% or +/-150 ppm, whichever is greater
- CalCard®
- Carrying Bag  9 x 2.5 x 12 in (22.86 x 6.35 x 30.48cm )
- Ports 1 USB 2.0
- Operating system Windows® Professional 32
- Weight Starting at 1.5 lb (0.69 kg)
- Dimensions (w x d x h) 5.9 x 9.21 x 0.61 in (15 x23.4x1.5cm)

- Greater usable lifetime
- Less affected by temperature
- Stable in ambient light
- Increased sensitivity
- Increased measuring range

Why Platinum Chemistry?

Fluorescence Technology does not consume oxygen making it ideal for long term oxygen studies. Fluorescent chemistries such as the platinum chemistry present in the package. This is read by the OpTech Detector and reported as a percentage of oxygen directly proportional to the decay of the fluorescence light source. The rate of decay of the fluorescence is excited by an external off light when stimulated used in the OpTech-O2 give as the platinum chemistry.

Fluorescence Technology?
OpTech®-O2 Platinum Specifications

<table>
<thead>
<tr>
<th>Detector and Base</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm-up time</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>
| Detector dimensions | Width: 1.3” x 3.30cm  
                      | Height: 1.9” x 4.83 cm  
                      | Depth: 9” x 22.86 cm (with needle), 6” x 15.24 cm (without needle) |
| Base dimensions  | Width: 4.8” x 12.19 cm  
                      | Height: 2.7” x 6.8 cm  
                      | Depth: 10” x 25.40 cm  |
| Measurement method | Epifluorescence Confocal |
| Power            | Standard Power USB port (2.5 watt) |
| Operating temperature | 10–35°C |
| Operating humidity | 0–100% non-condensing |
| Compliance       | CE/CSA/UL |
| PDF report options | Through program from computer |

Sensors Adhesive and ImPULSE™

| Application                  | Adhesive: Sensor is inside package  
                               | ImPULSE: Sensor is external |
|------------------------------|-----------------------------------|
| Repeatability Adhesive (Certified) | +/- 0.015% (150 ppm) O2 or 3% of reading, whichever is greater |
| Repeatability ImPULSE (Certified)   | +/- 0.05% (500 ppm) O2 or 3% of reading, whichever is greater |
| Range Adhesive               | 0.001% (10 ppm) to 25% O2 Permeation Mode  
                               | 0.015% (150 ppm) to 25% Headspace Mode |
| Range ImPULSE                | 0.05% O2 (500 ppm) to 25% O2 |
| Dissolved Oxygen Range       | 0.006 mg/L to 10.5 mg/L |
| Warm up time                 | None |
| Adhesion                     | Sensors come ready to apply |
| Operating temperature        | Warm up 5 – 40°C |
| Operating humidity           | 0–100% Sensors are designed to be immersed |

Needle Sensor

<table>
<thead>
<tr>
<th>Application</th>
<th>Sensor in needle must be 100% in volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeatability (Certified)</td>
<td>+/- 0.015% (150 ppm) O2 or 2% of reading, whichever is greater</td>
</tr>
<tr>
<td>Range</td>
<td>0.015% (150 ppm) to 25% Headspace mode</td>
</tr>
<tr>
<td>Warm up time</td>
<td>None</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Warm up 5 – 40°C</td>
</tr>
<tr>
<td>Operating humidity</td>
<td>0–100% non-condensing. Needle must not get wet</td>
</tr>
</tbody>
</table>

Computer Tablet and Case - subject to change

| Dimensions (w x d x h)  | 5.9 x 9.21 x 0.61 in (15 x 23.4 x 1.5 cm) |
| Weight                  | Starting at 1.5 lb (0.69 kg) |
| Operating system        | Windows® Professional 32 |
| Ports                   | 1 USB 2.0 |
| Carrying Bag            | 9 x 2.5 x 12 in (22.86 x 6.35 x 30.48 cm) |

CalCard®

| Accuracy                  | +/-2% or +/-150 ppm, whichever is greater |

CalVial™

| Accuracy                  | +/-150 ppm |

What is Fluorescence Technology?

Fluorescent chemistries such as the platinum chemistry used in the OpTech-O2 give off light when stimulated or excited by an external light source. The rate of decay of the fluorescence is directly proportional to the concentration of oxygen present. This is read by the OpTech Detector and reported as a percentage of oxygen present in the package. Fluorescence Technology does not consume oxygen making it ideal for long term oxygen studies.

Why Platinum Chemistry?

- Increased measuring range
- Increased sensitivity
- Stable in ambient light
- Less affected by temperature changes
- Greater usable lifetime

MOCON® Commitment

These analytical instruments are another example of MOCON's long-standing commitment to innovation and quality in the support of our customers.

Technical Support & Service

MOCON offers a variety of technical services designed to provide you with first class support. Whether you require technical support, next-day spare parts delivery, on-site training, N.I.S.T. certification or "turn-key" validation, our staff can tailor a service program to fit your needs. Our goal is to provide the best in product support services.

MOCON, CalCard, CalVial, ImPULSE and OpTech are registered trademarks of MOCON, Inc.
Windows is a registered trademark of Microsoft Corp.

763.493.6370 | info@mocon.com
1800-466-6656 | www.mocon.com
Headquartered in the United States Offices Worldwide