DOTS
a platform by sbi

DISSOLVED OXYGEN SENSOR PILLS

Dissolved Oxygen Monitoring In Shake Flasks

Shake Flask Challenges

No Dissolved Oxygen Monitoring

- Undetected oxygen limitations often deteriorate bioprocess outcomes

Usage of Adhesive Sensor Spots

- Manual placement of spots in shake flasks before each experiment is cumbersome
- Detachment of spots during the experiment can lead to unreliable data output
- Pre-equipped, single-use shake flasks with integrated sensor spots are expensive

What Our Customers Say

"The DO Sensor Pills allow us to effortlessly visualize oxygen availability during shake flask cultivations. This important parameter has a strong influence on our overall process performance."

– Frédéric Lapierre (University of Applied Sciences, Munich)

Key Features

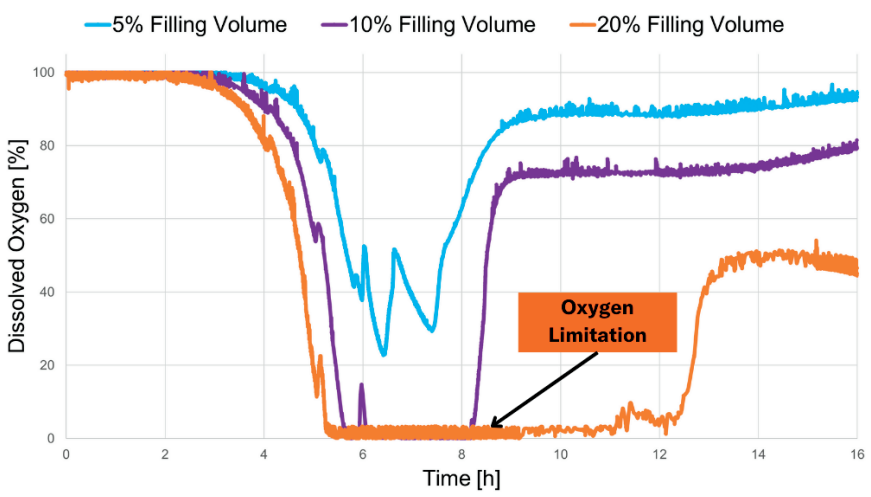
- Automated, online DO monitoring in shake flasks
- Novel, patented pill technology
- Unique pill identification algorithm removes the need for sensor spot alignment
- Powerful DOTS Software for easy sensor handling and real-time data visualization

Benefits

- Optimize your bioprocess in shake flasks by continuously monitoring DO
- Drop & Go: Easy handling and fast setup
- Use with any shake flask for reduced operating costs
- Connect with the DOTS Liquid Injection System for DO control in shake flasks with DO-based feeding

Filling Volumes Affect Oxygen Supply in Shake Flasks

250 mL shake flask, filled with LB medium, *E.coli* cultivation



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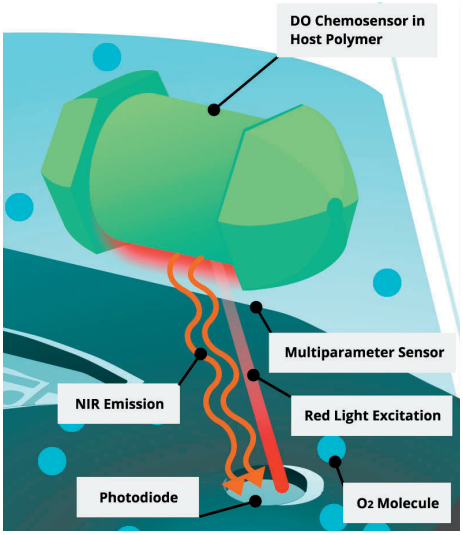
How It Works

The DO Sensor Pill is dropped into the shake flask and circulates in the media. The pill is built with an integrated chemosensor, containing a luminescent dye indicator suitable for dissolved oxygen (DO) sensing. The indicator is excitable with red light (at a wavelength of 610-630 nm) and shows luminescence in the near-infrared (NIR) region (760-790 nm). Depending on the level of oxygen present in the solution, the amount of luminescence changes. The multiparameter sensor (MPS), which is placed underneath the shake flask, can monitor the phase shift which is then used to provide real-time DO data from the flask.



Compatible With Your...

Bioprocess

- ✔ **For a broad range of organisms**
- ✔ **For most media compositions**

Lab Infrastructure

- ✔ **For different shake flask sizes**
  - From 100 mL - 2000 mL
- ✔ **Compatible with every shaking incubator**
  - Clamps and Sticky Mats

Applications

- ✔ **Bioprocess characterization**
- ✔ **Detect & avoid oxygen limitations**
- ✔ **Collect critical process parameters for an informed upscaling process**
- ✔ **Optimize process conditions with DO-based feeding**

Components

Optical DO Sensor Pill

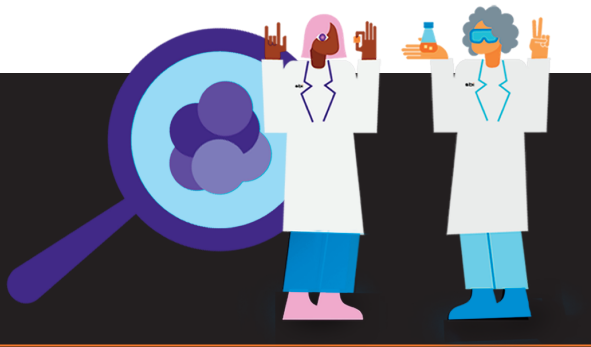
Single-use pill with an integrated chemosensor for dissolved oxygen measurements.

Multiparameter Sensor (MPS) & Adapter

The MPS identifies & excites the pill and measures the emission, forwarding the data to the DOTS Software.

DOTS Software & USB Hub

The data of multiple sensors is bundled via an USB Hub. The powerful software allows for easy sensor handling and real-time data visualization.



Want More From Your Flask Than Just DO? Check Out the DOTS Platform!

Contact Us

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