

Getting Started with VisiSens™ -

Notes on O₂ Measurement in Microfluidics

1. For integration of the O₂ sensor foil in your microfluidic chip, please see the following reference or contact our service team for support:

Ochs CJ, Kasuya J, Pavesi A, Kamm RD. Oxygen Levels in Thermoplastic Microfluidic Devices during Cell Culture. Lab on a chip. 2014;14(3):459-462. doi:10.1039/c3lc51160j.

2. A two point calibration is required for the quantitative image analysis of O₂ sensor foils. Please follow the links for a video tutorial and a description on how to prepare the calibration solutions:

<https://www.presens.de/support-services/videos/video/visisens-analytical-1-calibration-936.html>

<https://www.presens.de/support-services/faqs/question/how-can-i-prepare-the-calibration-solutions-cal0-and-cal100-for-oxygen-sensors-35.html>

3. It is recommended to perform the measurements through the bottom of the chip. The detector unit is delivered with an adapter tube that defines a certain distance to the sample and the field of view (12 x 10 mm) when you place the chip directly on top of it.



4. Depending on your channel geometry, you can increase the distance between detector unit and foil / chip up to 12 cm for a larger field of view (with our different adapter tubes:

<https://www.presens.de/products/detail/visisenstm-adapter-tubes.html>).

Please ensure parallel positioning and exclusion of ambient light.

5. The sensor foil's optical isolation white (OIW) is usually removed for application in microfluidics. However, the standard settings, which are applied automatically by the software, are optimized for foils with optical isolation. It might be necessary to increase the '**Exposure**' settings to get a sufficient signal in your measurement set-up.

USEFUL LINKS:

Webinar

Metabolic Activity inside Microfluidics <https://www.presens.de/support-services/videos/video/visisens-webinar-metabolic-activity-inside-microfluidics-1047.html>

Related Application Note

<https://www.presens.de/knowledge/publications/application-note/cellular-oxygen-consumption-in-microfluidic-devices-612.html>