

# SOP for Function Testing Dissolved Oxygen Sensors (Sample)

## 1.0 Purpose

The purpose of this Standard Operating Procedure (SOP) is to describe the process for Function Testing Dissolved Oxygen sensors.

**Note:** Confirm that your DO Transmitter is able to provide you with a Continuous Live nanoAmp display prior to initiating this procedure. The use of the % Saturation value is not applicable to this procedure. Also, the use of a timer or some form of localized stopwatch is highly recommended.

## 2.0 Function Test of the Dissolved Oxygen Sensor

2.0.1 Connect the DO sensor to be tested to a DO transmitter. Confirm that the DO Transmitter is operating in the Automatic Temperature Compensation (ATC) mode and that the Barometric Pressure setting on the Transmitter is correct.

**Note:** **The DO Sensor MUST be Polarized prior to testing the Zero in Nitrogen. The amount of time varies, 98% of polarization takes place in the first 30 minutes, but for complete polarization allow for AT LEAST Six Hours PRIOR to the Function Test.**

2.0.2 Allow the DO sensor to remain in air for 5 minutes and record the nanoAmp value displayed on the DO transmitter. This reading must be between 40-80 nanoAmps to be passed.

2.0.3 Select the appropriate size Calibration Cap (12mm, 19mm or 25mm) and slide the DO sensor into the Cap. The DO sensor should be inserted past the internal O-ring of the Calibration Cap to ensure a seal. Plastic stoppers in the Cap will ensure that the DO Sensor does not bottom out.

2.0.4 Place the DO sensor on an available surface or hold at the connector. Begin the flow of Nitrogen to the calibration cap with the DO sensor inserted. During this procedure the DO sensor should only be held at the connector. It is important to avoid contact with the Nosepiece.

2.0.5 Allow the flow of Nitrogen to continue for 2 minutes or until the DO transmitter displays less than or equal to 1 nanoAmps. The DO sensor must be able to reach a displayed nanoAmp value of less than or equal to 1 within 2 minutes for it to pass. Record the displayed nanoAmp value on the related document.

2.0.6 Turn off the flow of Nitrogen and remove the DO sensor from the calibration cap.

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- 2.0.7 Allow the DO sensor to remain in air for 1 minute or until the DO transmitter displays a stable nanoAmp measurement. Record this nanoAmp value on the related document.
- 2.0.8 Compare the nanoAmp value from step 2.0.2 to the nanoAmp value recorded in step 2.0.7.
- 2.0.9 The recorded value in step 2.0.7 must be +/- 1 nanoAmp of the recorded value from step 2.0.2 to pass.
- 2.0.10 If the DO sensor does not pass the steps noted above then verify polarization and conduct a visual inspection of the DO sensor for membrane cleanliness and integrity.

This procedure has been written to apply specifically to those utilizing Polargraphic Dissolved Oxygen Sensors in Bioprocess Applications. All the equipment noted above to introduce this procedure is readily available. Should you have any questions about its applicability to your DO sensor please do not hesitate to give us a call at (800) 288-2833.



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