

Why should DO sensors be calibrated after sterilization?

Calibration: To optimize the readings, dissolved oxygen probes should be calibrated in the process media, after sterilization. This is due to several factors:

1. Sterilization could alter the sensor output. The tension of the membrane against the cathode is an important factor in the sensor signal. The high temperatures of sterilization may cause the membrane to stretch. Calibrating after sterilization will account for any possible change in the sensor's output.
2. Many bioprocess applications involve aerating or sparging the vessel while applying an over pressure to the tank. This overpressure may affect the readings if not taken into account during the calibration.
3. Since the membrane permeability is slightly different in air than in water and the ambient relative humidity of air is usually less than 100%, air calibrations can differ from aqueous calibrations by a very small amount.

In summary, when measuring dissolved oxygen as % saturation, the calibration should be performed under process conditions to minimize error and maximize accuracy and reproducibility.

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