

# Advanced HACH LDO® Process Dissolved Oxygen Probe

## Hach LDO: Real-World FAQ

### **Why is Hach's LDO® the world's best selling luminescent dissolved oxygen sensor?**

- No membranes - membrane cleaning and replacement is a thing of the past
- No electrolyte solutions to poison or replenish
- No anode or cathode to clean or replace
- Simple maintenance - all you need to do is periodically wipe the sensor off with a wet cloth
- Infrequent calibration - eliminates down time, saves money, and avoids shipping hassles
- 99% accuracy
- No interference from hydrogen sulfide, heavy metals or other chemicals

### **How does the Hach LDO work?**

*Principle of operation:* The HACH LDO sensor is coated with a luminescent material. Blue light from an LED is transmitted to the sensor surface. The blue light excites the luminescent material. As the material relaxes, it emits red light. The time from when the blue light was sent and the red light is emitted is measured. The more oxygen that is present the shorter the time it takes for the red light to be emitted. This time is measured and correlated to the oxygen concentration. Between the flashes of blue light a red LED is flashed on the sensor and used as an internal reference.

### **Can the HACH LDO® sensor cap be damaged or destroyed by sunlight?**

The black polystyrene coating on the Hach LDO sensor protects the sensor from sunlight. Research has shown that with the polystyrene layer, the sensor could withstand a simulated year of direct exposure to sun. As long as the cap is on the Hach LDO probe, there are no issues with degradation. There also are no issues with degradation of the inside of the sensor cap during maintenance or cap changes (the interior of the cap would need to be exposed for over two hours for degradation to occur). The only reason to remove the cap is when replacing it with a new cap, in which case the sun exposure time for the inside of the cap is minimal.

### **How does a polystyrene coating compare with a silicon rubber coating on other Luminescent Dissolved Oxygen probes?**

The polystyrene coating allows the dissolved oxygen to quickly penetrate the coating and reach the sensor. Experience has shown that silicone rubber does not absorb the dissolved oxygen as quickly as polystyrene. Polystyrene coated sensors respond faster to changes in dissolved oxygen levels than silicon rubber coated sensors.

### **What type of material is the Hach LDO sensor, and how does it compare to other sensor technologies on the market?**

The Hach LDO uses a Platinum based luminophore. This sensor material is superior to other materials such as Ruthenium because it allows for a greater dynamic range in measurement allowing for higher accuracy and precision.

### **How long is the warranty on the Hach LDO probe and the sensor cap?**

The Hach LDO probe is warranted for three years from the date of shipment. The Hach LDO sensor cap is warranted for one year from the date of installation or 18 months from the date of shipment, whichever comes first.

**Will the Hach LDO probe work in high salinity applications?**

The Hach LDO sensor works exceptionally well in high salinity applications. The Hach LDO has a salinity correction feature included in the software. This feature is effective for salinity values up to 250 parts per thousand.

**What kind of calibration does the Hach LDO probe require?**

Hach LDO probes should be calibrated before first use. Periodic calibrations during normal use ensure optimum performance, with the frequency of calibration determined by site conditions and customer requirements.

**What types of calibration are available?**

Most calibration techniques may be used, including air calibration, calibration by comparison to a Winkler Titration, calibration by comparison to a hand-held DO analyzer, or concurrent calibration of two sensors.

**If I choose to do an air calibration, in what type of environment will I need to do the calibration?**

During an air calibration, the Hach LDO probe should be inserted into a calibration bag. Then add a small amount of water to the bag (25-50mL). This is to ensure that the sensor is calibrated in saturated air. It is also important to keep the sensor away from heat sources during calibration to avoid temperature variation.

**How long does the sensor calibration take?**

The calibration typically takes less than 5 minutes.

**Is the sensor self cleaning? Does the air-blast system damage the sensor?**

To clean the sensor during normal operations, the customer only needs to wipe the sensor with a cloth. For extreme conditions where build-up on the sensor is a concern, Hach Company offers an airblast unit.

The airblast unit will not damage the sensor coating on the Hach LDO. In fact, the Hach LDO sensor is capable of surviving harsh environments (with or without an airblast) where other sensors will fail (e.g. pure oxygen aeration basins, floating media, etc).

**I would like to speak to an unbiased third party regarding the Hach LDO. Can you provide a list of installations or customers who have used your technology?**

Hach LDO units have been in the field since early 2003 with thousands of satisfied customers. Please contact your local sales representative for a list of references.