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What is DPD and how are these tests run?

The most widely used DPD tests are done using the colorimetric system. The amount of Chlorine in the water causes the color to change to magenta. DPD causes an oxidation of the chlorine, which changes the color. The intensity of the color is directly proportional to the chlorine concentration. (DPD stands for N, N-diethyl-p-phenylenediamine). DPD reacts in much the same way with other oxidants, including bromine, iodine, ozone and permanganate.

What is the difference between an Amperometric and a Potentiometric sensor and which ProMinent sensors fall into each category?

The Amperometric sensors measure a change in current, while the Potentiometric sensors measure a change in Voltage. The Potentiometric sensors are shielded and are susceptible to line noise and other interferences; pH and Redox sensors fall into this category. All of the other sensors supplied by ProMinent are Amperometric. **Note: ProMinent offers many accessories such as mA transducers and impedance converters, which can convert a potentiometric output for long runs.**

Are there certain applications where Dulcotest sensors should not be used?

- A. Glass sensors should not be used in Hydrofluoric acid. (Concentration dependent) 1 PPM in drinking water is acceptable.
- B. Sensors should not be used in applications requiring steam sterilization.
- C. Membrane style sensors should not be used in pressurized systems.
- D. Sensors should not be used in ultrapure water applications (water permeates membrane to dilute electrolyte).

What is the best way to clean sensors?

Glass sensors should be soaked in a dilute 1% Hydrochloric acid solution for several hours with periodic gentle brushing. then rinsed with water. The steps are the same for most membrane sensors, but the electrolyte must be replaced after cleaning. (The CTE sensor membrane cannot be cleaned; it must be replaced).

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What is the approximate life of a pH sensor?

Most pH sensors have a normal life of 6 months to 1 year, depending on system and solution conditions.

How do you calibrate a pH sensor?

Normally, a pH sensor is calibrated using a pH 7.0 buffer solution first. D1C and D2C controllers ask for a 2-point calibration, so the sensor would be calibrated at the second point using a pH 4.0 or pH 10.0 buffer solution.

Redox (ORP)

What is Redox?

Reduction / Oxidation is a principle that measures the solution's strength to either reduce or oxidize materials in a solution. The term Redox stands for simultaneously occurring reduction and oxidation process in aqueous solutions. In an oxidation process, electrons are transferred from the substance to be oxidized to the oxidant. Simultaneously, in oxidizing the substance, the oxidant is reduced. Oxidants are electron acceptors and reducing agents electron donors. Oxidizers are normally Caustic. Reduction agents are normally Acidic. Measurement of Redox potential is pH dependent.

Chlorine

What is free residual Chlorine and how is it measured?

Chlorine exists in water as Hypochlorous Acid (HOCL) and Hypochlorite lons (OCL). It reacts readily with ammonia and some nitrogenous compounds to form combined chlorine. It can be measured by DPD1. Note: Most DPD test kits change the pH of the sample to between 6.5 and 6.8.

What is combined residual Chlorine and how is it measured?

Chlorine existing in a chemical combination with Ammonia, Nitrogen, or organic Chlorine compounds. It can be measured with DPD3. Note: Chlorinated wastewater and industrial effluents normally contain only combined chlorine.

What is total Chlorine and how is it measured?

Total Chlorine is free Chlorine plus combined Chlorine. It can be measured by DPD4.

I am using a CLE Chlorine sensor in my system. My solution contains a surfactant and my chlorine reading drifts slowly downward.

The surfactant may clog the sensor membrane. This electrode was designed for swimming pools and water of similar quality.

Can I use the CLE Chlorine sensor in Deionized water?

No, the electrolyte will be diluted by diffusion and because the sensor is Amperometric, it needs some conductivity to function.

Can I use the CLE sensor in water with a high turbidity level?

No, the recommended range of the sensor is 100 to 300 mg of hardness. Reduce the turbidity by filtering and then run the test samples. The sensor membrane can be clogged by a highly turbid sample.