

## Technical Information:

ProMinent Fluid Controls Ltd.

**ProMinent®**

**Date:** 10/31/2006

**Subject:** What is ORP

**Product:** ORP Equipment

**Category:** Measurement and Control

**Pages:** Page 1 of 1

What is ORP? Oxidation-reduction is a type of chemical reaction where electrons are transferred from one substance to another. The oxidized species loses electrons and the reduced substance gains electrons. Oxidation-reduction potential (ORP) is the measurement of the reaction in voltage of an electrochemical cell. In the case of water treatment, it is the measure of the oxidizing properties of the sanitizer in the water and is measuring activity not concentration levels (ppm).

The advantage of using ORP monitoring is that it provides a rapid and single value assessment of the disinfection potential of a water treatment method.

ORP Probes measure the reduction potential of the water in millivolt's. The mV reading from a probe in solution can be correlated to the concentration of disinfectant in the water. This value will be different for different sites, for example to get an accurate measurement of ppm of Chlorine you will need to do a DPD 1 test or titration, the value you get will correspond to the ORP value in mV, so if you get 1ppm with your DPD test and 450mV on your ORP controller then you know that 450mV is approx equal to 1ppm of free chlorine.

Some equipment, like our DSR controller, will allow you to display ppm even though the controller is using an ORP probe to measure. To do this you need an ORP probe and pH probe (for correction of the signal), and once you do your DPD test you enter in your ppm value into the DSR controller and the controller will then calculate and track the approx ppm value of free chlorine in your water.

ORP is commonly used in swimming pool, potable water, and industrial water treatment applications, and offers a low cost and low maintenance alternative to measuring Cl, ClO<sub>2</sub> and other disinfectants in your process.