

Introduction to ORP

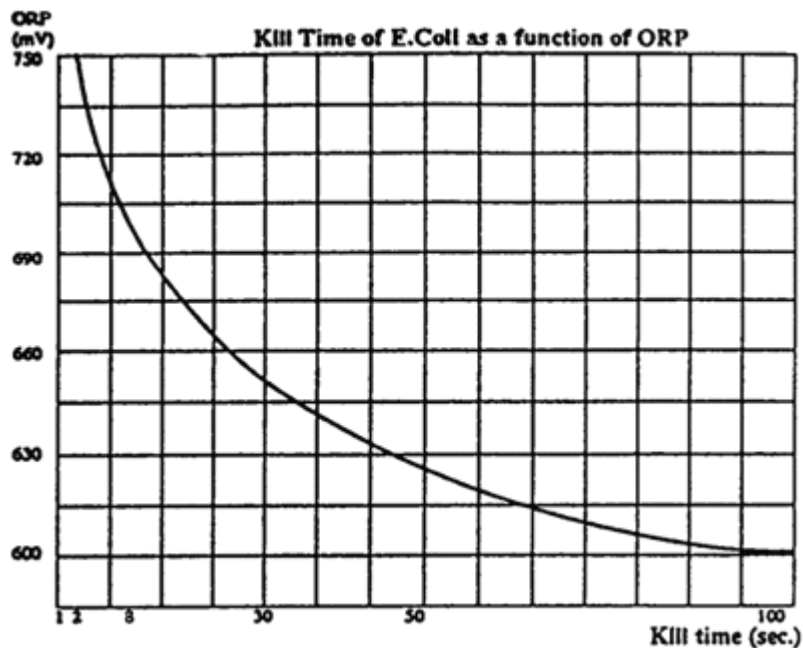
Oxidation-Reduction Potential (ORP) or Redox potential measurements are used to monitor chemical reactions, to quantify ion activity, or to determine the oxidizing or reducing properties of a solution. ORP is a measurement of the electrical potential of a redox reaction and serves as a yardstick to judge how much oxidation or reduction takes place under existing conditions.

ORP electrodes measure the voltage across a circuit formed by the measuring metal half cell and the reference half cell. When the ORP electrode is placed in the presence of oxidizing or reducing agents, electrons are constantly transferred back and forth on its measuring surface, generating a tiny voltage. The ORP measurement can be made using the millivolt mode of a pH meter.

ORP measurement may be utilized very successfully in many commercial and industrial applications. These include:

- Cyanide Oxidation
- Aquarium Monitoring
- Chromate Reduction
- Drinking Water
- Swimming Pool Water
- Pulp Bleaching
- Cooling Tower
- Ozone Monitoring
- Water Pollution Monitoring

ORP technology has been gaining recognition worldwide and is found to be a reliable indicator of bacteriological water quality for sanitation - determine free chlorine parameter. In swimming pool application, the ideal ORP value is approximately 700 mV where the Kill Time of E.Coli bacteria is the fastest to ensure good water quality. However ORP value also depends on the pH of pool water, which is typically between 7.2 and 7.6 pH.



The pH of pool water has to be maintained at optimum level by dosing appropriate chemicals. If the pH of swimming pool is acceptable and ORP value is below 700 mV, then hypochlorite or other oxidizing chemicals need to be added.

