

## About pH

The measure of a liquid's acidity and alkalinity, pH is one of the most common parameter measured in a wide variety of industries ranging from water and wastewater treatment, chemical production, agriculture research and production, environmental monitoring, chemical and life sciences research, biochemical and pharmaceutical research, electronics production to food processing and other industrial applications

Pacific Sensor Technologies offers a wide range of pH meters that measure pH values in various educational, laboratory and industrial applications. These include the Eutech range of pHTestr™10, 20 and 30 pocket testers, portable meters CyberScan Series pH 300, pH 310, pH 11 and pH 110, EcoScan pH 6 and the CyberScan bench meter series 510, 1100, 2100, 1500 and the colour touch screen research-grade series 6000.

## About Conductivity

Electrical Conductivity (EC) meters measure the capacity of ions in an aqueous solution to carry electrical current. As the ranges in aqueous solutions are usually small, the basic units of measurements are mill Siemens/cm (mS/cm) and micro Siemens/cm (µS/cm).

Conductivity is used widely to determine the level of impurities in water supplies for domestic consumption as well as industrial use. Industries that employ this method include the chemical, semi-conductor, power generation, hospitals, textile, iron and steel, food and beverage, mining, electroplating, pulp and paper, petroleum and marine industries.

Specific applications include chemical streams, demineraliser output, reverse osmosis, steam boilers, condensate return, waste streams, boiler blow down, cooling towers, desalinization, laboratory analysis, fruit peeling and salinity level detection in oceanography.

Some applications require the measurement of Total Dissolved Solids (TDS) in mg/L, parts per million (ppm) or parts per thousand (ppt). The TDS concentration can be obtained by multiplying the conductivity value with a factor, which is empirically determined. The total TDS is a mass estimate and is dependent on the mix of chemical species as well as the concentration while Conductivity is only dependent on the concentration of chemical species.

Pacific Sensor Technologies offers the Eutech range of conductivity meters for these various applications.

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## About ORP/Redox

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.

Major areas of usage include the treatment of industrial wastes, study of biological systems, oxidation of cyanide, bleaching of pulp, manufacture of bleach and reduction of chromate wastes. The measurement of ORP is also useful in pool water treatment as an indication of sanitation in relation to free chlorine parameter.

Pacific Sensor Technologies offers the Eutech range of ORP meters that measure both pH and ORP values in various educational, laboratory and industrial applications. These include ORPTestr™10 pocket tester, portable meters CyberScan Series pH 300, pH 310, pH 11 and pH 110, EcoScan pH 6 and the CyberScan bench meter series 510, 1100, 2100, 1500 and the colour touch screen research-grade series 6000.

## About Total Dissolved Solids

The total TDS is a mass estimate and is dependent on the mix of chemical species as well as the concentration while conductivity is only dependent on the concentration of chemical species. Some applications require the measurement of Total Dissolved Solids (TDS) in mg/L, parts per million (ppm) or parts per thousand (ppt). The TDS concentration can be obtained by multiplying the conductivity value with a factor, which is empirically determined. Eutech offers meters that allow the direct reading of TDS values. These include the TDSTestr™ series, EcoScan TDS 6, CyberScan Standard Portables CON 11, CON 110 and Waterproof Portable CON 410. Bench meters for advanced level laboratory research are the CyberScan CON 510, CON 1500 and colour touch screen research-grade CON 6000.

## About Dissolved Oxygen

DO stands for Dissolved Oxygen, which is the measure of amount of gaseous oxygen dissolved in a solution. In theory, the amount of DO in a solution is dependent on 3 factors, namely temperature, salinity and atmospheric pressure. The measurements of DO require a special DO electrode that is made up of an anode, a cathode, electrolyte solution and a gas permeable membrane.

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## About Turbidity

Turbidity refers to the concentration of undissolved, suspended particles present in a liquid measured in Nephelometric Turbidity Units (NTU). It is important to note that turbidity is a measure of sample clarity and not colour. Water with cloudy or opaque appearance will have high turbidity, while water that is clear or translucent will have low turbidity. High turbidity value is caused by particles such as silt, clay, micro-organisms, and organic matter. By definition, turbidity is not a direct measure of these particles but rather a measure of how these particles scatter light.

Turbidity is a very complex analytical measurement, which can be affected by many factors. Some are inherent in the instrument's design such as angle of detection, light beam aperture, incident beam wavelength and colour sensitivity of the photocell. However, there are other factors such as stray light, air bubbles and care of vial, which can be prevented through proper care of equipment and accessories.

The Eutech CyberScan TB 1000 Turbidimeter meets the performance criteria specified by US EPA method 180.1 for NTU measurement. In addition, the infrared light source models meet the ISO 7027 standards of measurement. The Eutech Waterproof Portable TN 100 Turbidimeter designed for testing on-the-go features laboratory accuracy and excellent repeatability with US EPA approved non-formazin standards and is ISO 7027 compliant.

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