CONDUCTIVITY VS. TOTAL DISSOLVED SOLIDS (TDS)

IT'S IMPORTANT TO UNDERSTAND THE RELATIONSHIP BETWEEN CONDUCTIVITY AND TOTAL DISSOLVED SOLIDS, OR TDS.

WHAT IS CONDUCTIVITY?



Conductivity measures the ability of a water solution to conduct an electrical current. Conductivity testing is quick and easily automated, only requiring a conductivity probe and meter.

WHAT IS TDS?

Total dissolved solids, or TDS, on the other hand is the concentration of dissolved solids in a water solution. Measuring the TDS requires evaporating a volume of water to dryness and weighing the solids that remain.



HOW ARE THEY RELATED?

The conductivity of water is determined by the type and concentration of dissolved solids with low TDS solutions having a low conductivity.

Conductivity is often used to estimate the TDS in water. In general, conductivity increases as the dissolved solid concentration increases.

If the water quality is consistent, conductivity provides a practical way to monitor the TDS and cycles of concentration in evaporative systems.

As a rule of thumb, the actual TDS is typically 65-75% of the measured conductivity, but can vary depending upon the ions in the water.

WHICH FACTORS IMPACT CONDUCTIVITY?

WHILE CONDUCTIVITY CAN HELP DETERMINE TDS, KEEP IN MIND:

Scale formation can lower conductivity as dissolved ions precipitate out of water

Not all dissolved solids conduct electricity equally (organic substances like sugar and oil contribute very little to conductivity)

Conductivity is temperature sensitive. Use temperature compensated probes and ensure sample temperature is within specifications

Low conductivity samples are readily affected by small amounts of contamination, carbon dioxide absorption, or degassing

Boiler water samples typically require neutralization due to the high conductivity contribution of hydroxide ions

Conductivity is the most practical way to monitor and control TDS, but it is important to understand the differences and limitations

To learn more, **contact Chem-Aqua today at 1-866-209-3373 or info@chemaqua.com**