Method Abstract #142
Resistivity

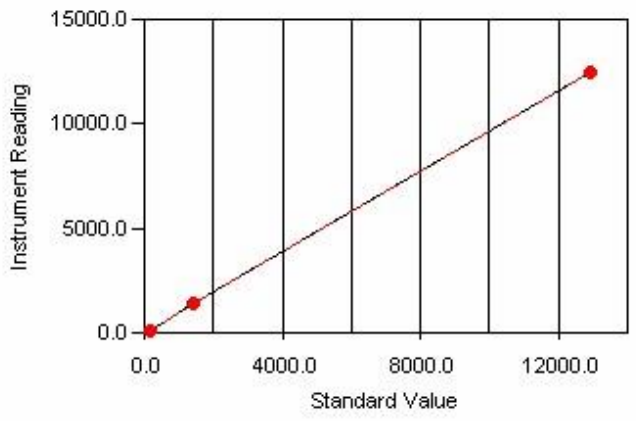
Scope and Application

This method determines the resistance of water samples. This method conforms to Standard Method 2510 B, US EPA 120.1, ASTM D1125, ISO 7888 and EN 27888.

Method Summary

Resistivity is defined as the inverse of conductivity, so to measure resistivity a conductivity cell consisting of two plates is submerged into a solution and a voltage is passed across the two plates. Ions in the solution are attracted to the plate of opposite charge and move between the two plates depending on the resistance of the solution. Resistivity is then expressed as the reciprocal of the electrical conductivity and is commonly reported in units of Megaohms (MΩ). Prior to sample analysis, a calibration is performed using standard potassium chloride solution. The resistivity is then calculated as the inverse of a conductivity reading read directly from the conductivity meter.

Sample Calibration Curve



Method Performance

Parameter	Specification
Measuring Range*	No Lower Limit - 18 MΩ
MDL	5 MΩ
RSD for deionized water, 1 MΩ	19.10% or +/- 5 MΩ
RSD @ 6.8 kΩ	0.70% or +/- 0.97 MΩ
RSD @ 0.71 kΩ	0.18% or +/- 0.39 MΩ
RSD @ 0.078 kΩ	0.11% or +/- 0.070 MΩ
RSD for Tap water, 1.06 kΩ	0.33% or +/- 0.32 MΩ

*Data for this measuring range was obtained using conductivity measurements of laboratory prepared standards formulated from potassium chloride. The measuring range may be increased by using auto-dilution.

RSD Values are better than those specified in Standard Methods.

The MANTECH C10 Conductivity meter and associate temperature compensated probe has a range of 18 MΩ/cm to 0.0005 MΩ/cm.