

Smart Notes

Innovative design features for greater efficiency and productivity



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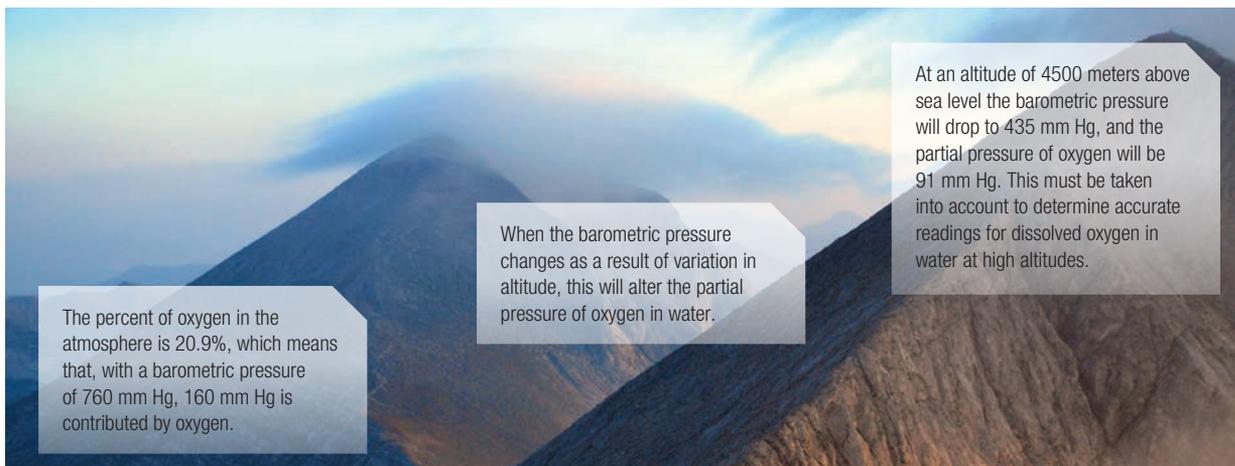
Can dissolved oxygen levels be measured at high altitudes?

Yes. By selecting advanced instrumentation with particular design features, you can perform accurate and repeatable dissolved oxygen measurements at altitudes of 4,500 meters above sea level.

The saturated dissolved oxygen (DO) level of a water sample is dependent on a number of factors, including temperature, atmospheric pressure/altitude, and salinity. Advanced instrumentation, like Thermo Scientific™ dissolved oxygen meters, are designed with advanced components that measure these factors and use them to determine accurate readings. No matter what your altitude, you'll have confidence that your readings are reliable.



The dissolved oxygen sensor and meter system measures the partial pressure of oxygen in water



The percent of oxygen in the atmosphere is 20.9%, which means that, with a barometric pressure of 760 mm Hg, 160 mm Hg is contributed by oxygen.

When the barometric pressure changes as a result of variation in altitude, this will alter the partial pressure of oxygen in water.

At an altitude of 4500 meters above sea level the barometric pressure will drop to 435 mm Hg, and the partial pressure of oxygen will be 91 mm Hg. This must be taken into account to determine accurate readings for dissolved oxygen in water at high altitudes.

DO solubility in saturated water at any one temperature, barometric pressure, and salinity has been measured and recorded by scientists over the years. The information has then been used in programming modern recording instruments. Water holds less oxygen at low barometric pressure (high altitude) and at high salinity. Thermo Scientific™ Orion™ Versa Star™, Thermo Scientific™ Orion Star™ A200 series and Orion Star A300 series dissolved oxygen meters have an internal barometer that is used to measure the exact barometric pressure at the point of measurement. The oxygen partial pressure of the sample as measured by the DO sensor is converted into concentration terms (mg/L) by using the solubility value of oxygen at the specific atmospheric pressure, temperature, and salinity. By default, the Orion Star A200 series, Star A300 series and Versa Star dissolved oxygen meters measure and compensate for the atmospheric pressure automatically. There is an option to enter the barometric pressure manually if desired.



Summary

Ensure your dissolved oxygen readings are accurate, even at high altitudes, by choosing instrumentation designed to make your complex measurements routine and reliable.



Take your measurements to new heights. Learn more at www.thermoscientific.com/orionmeters

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