

Technical Specification

Tests For: Ozone in Water

Test Range: 0–3 mg/L

Reagent Chemistry Used: DPD

Method Detection Limit*: 0.01 mg/L

Limit of Quantification**: 0.01 mg/L

*The Method Detection Limit (MDL) is defined as the minimum measured concentration of a substance that can be reported with 99% confidence to be different from the method blank results.ⁱ

**The Limit of Quantification (LOQ) is the smallest quantity that can be detected with reasonable certainty for a given analytical procedure.ⁱⁱ

Testing for Ozone

Ozone is used for the disinfection of swimming pool water, and in many other water treatment systems. In swimming pool water treatment ozone is normally introduced into the circulation system and then removed prior to the re-entry of the water to the pool. In other water treatment systems an ozone residual may be maintained in the water. In all cases accurate measurement of ozone residual is essential for the control of the system or to ensure that the ozone has been removed.

The Palintest DPD Ozone method provides a simple means of measuring ozone residuals up to a level of 3.0 mg/l. Other disinfectants such as chlorine and bromine are frequently used in conjunction with ozone. Supplementary procedures are therefore provided for the separate determination of these residuals.

Reagent Chemistry

The Palintest Ozone test uses the DPD method. Ozone reacts with diethyl-p-phenylene diamine (DPD) in buffered solution in the presence of potassium iodide to produce a pink coloration. The intensity of the colour is proportional to the ozone concentration and is measured using a Palintest Photometer.

For the determination of ozone in the presence of chlorine or bromine, a supplementary procedure using glycine is used. The glycine destroys the ozone in the sample and the colour produced in the DPD test thus corresponds to the chlorine or bromine only.

ⁱ EPA, Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, Dec 2016.

ⁱⁱ IUPAC. *Compendium of Chemical Terminology, 2nd ed. (the "Gold Book")*.