

## Photometer Method

# OZONE

## AUTOMATIC WAVELENGTH SELECTION

### TEST FOR OZONE IN WATER

0 – 2.0 mg/l

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 2.0 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.

#### Method

The Palintest Ozone test uses the DPD method now internationally recognised as the standard method of testing for disinfectant residuals. In the DPD method the reagents are provided in tablet form for maximum convenience and simplicity of use.

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. The ozone content is thus obtained by the difference between the test readings with and without glycine.

#### Reagents and Equipment

Palintest DPD No 4 Clear Tablets

Palintest DPD Glycine Tablets

Palintest Automatic Wavelength Selection Photometer

Round Test Tubes, 10 ml glass (PT 595)

## Separation of Ozone Residuals

The photometer is programmed for both ozone and the correction procedure. Use program **Phot 25** Ozone (+ Chlorine), then select the 'Follow On' option on screen to continue test using program **Phot 26** Correction Procedure. The corrected ozone residual is calculated automatically and displayed.

### Test Procedure

- 1 Rinse test tube with sample leaving two to three drops of sample in the tube.
- 2 Add one DPD No 4 tablet, crush tablet and then fill the test tube with sample to the 10 ml mark. Mix to dissolve tablet.
- 3 Gently invert the tube to remove any bubbles from the inner walls of the tube
- 4 Select Phot 25 on Photometer.
- 5 Take Photometer reading in usual manner (see Photometer instructions).
- 6 The result represents the **ozone** residual as milligrams per litre.

The test may be terminated at this stage for systems treated with ozone alone. For waters containing both ozone and chlorine or bromine, a correction should be made as indicated in the following section. Select 'Follow On' option on screen to continue the test program.

### Correction for Chlorine or Bromine

- 1 Fill a test tube with sample to the 10 ml mark. Add one DPD Glycine tablet, crush and mix to dissolve.
  - 2 Take a second clean test tube and add two to three drops of solution from the first tube. Add one DPD No 4 tablet, crush and then add the remainder of the solution to make up to the 10 ml mark. Mix to dissolve tablet.
  - 3 Gently invert the tube to remove any bubbles from the inner walls of the tube
  - 4 Take Photometer reading in the usual manner.
  - 5 The Photometer carries out the necessary calculation and displays the corrected ozone residual as mg/l O<sub>3</sub>.
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