

# ZINC

## TEST FOR ZINC IN NATURAL AND TREATED WATERS

**Photometer Method**

**AUTOMATIC  
WAVELENGTH  
SELECTION**

**0 – 4.0 mg/l**

Zinc compounds are used as corrosion inhibitors in industrial cooling water systems and similar applications. Control of the zinc level is an important aspect of corrosion control in such systems. Zinc and zinc containing alloys are widely used in industry and zinc salts are commonly found in industrial effluents.

The Palintest Zinc test provides a simple means of testing zinc levels over the range 0 - 4 mg/l and is suitable for testing cooling waters and industrial effluents, and for the monitoring of natural and drinking waters.

### Method

Zinc reacts with 5-(o-carboxyphenyl)-1-(2-hydroxy-5-sulphophenyl)-3-phenyl-formazan (Zincon) in alkaline solution to give an intense blue colour. The reagent itself is orange in solution. At different zinc levels a distinctive colour range from orange through purple to blue is produced. In the Palintest Zinc test a tablet reagent containing both Zincon and an alkaline buffer is used for maximum convenience. The test is simply carried out by adding a tablet to a sample of the water. Samples containing high chlorine residuals are pre-treated with a special dechlorinating tablet to prevent bleaching of the test colours.

The colour produced in the test is indicative of the zinc concentration and is measured using a Palintest Photometer.

Copper reacts in a similar manner to zinc and a correction procedure using EDTA is applied to those samples which contain both zinc and copper. EDTA destroys the colour complex formed with zinc.

### Reagents and Equipment

Palintest Zinc Tablets

Palintest Zinc-Dechlor Tablets

Palintest EDTA Tablets

Palintest Automatic Wavelength Selection Photometer

Round Test Tubes, 10 ml glass (PT 595)

## Separation of Residuals

The photometer is programmed for both zinc and the copper correction procedure. Use program **Phot 35** Zinc (+ Copper), then select the 'Follow On' option on screen to continue test for program **Phot 36** Corrected Zinc. The corrected zinc value is calculated automatically.

## Test Procedure

- 1 Fill test tube to the 10 ml mark.
  - 2 IN THE CASE OF CHLORINE CONTAINING SAMPLE ONLY :-  
Add one Zinc-Dechlor tablet, crush and mix to dissolve.
  - 3 Add one Zinc tablet, crush and mix to dissolve.
  - 4 Allow the sample to stand for five minutes then mix again to ensure complete dissolution of the indicator.
  - 5 Select Phot 35 on Photometer.
  - 6 Take Photometer reading in usual manner (see Photometer instructions). The result is displayed as mg/l Zn.
  - 7 FOR COPPER CONTAINING SAMPLES ONLY :-  
Continue the test on the same test portion. Select the 'Follow On' option on screen to continue the test program.
  - 8 Add one EDTA tablet, crush and mix to dissolve.
  - 9 Take Photometer reading in usual manner.
  - 10 The photometer displays the corrected zinc concentration as mg/l Zn.
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