ZINC METHOD 2

Using Copper/Zinc Tablets

INTRODUCTION

While the following procedure may be applied to most waters, it has been specially developed for the determination of Zinc in cooling waters. As Copper reacts in a similar manner to Zinc, a supplementary procedure is provided to overcome such interference, should significant amounts of copper be present.

PRINCIPLE OF THE METHOD

Zinc reacts with zincon in solution buffered to pH 9.0 to give an intense blue colour. The solution of the reagent itself is orange. Thus, over the ranges covered by the discs, the colours show a distinct difference in shade which may be measured by comparison with a series of Lovibond permanent colour glass standards. To provide maximum simplicity for testing the buffers and zincon reagent are combined together in tablet form.

REAGENTS REQUIRED

1. **Lovibond Copper/Zinc High Range Test Tablets (for disc 3/102)**

2. **Lovibond Copper/Zinc Low Range Test Tablets (for disc 3/151)**

SUPPLEMENTARY REAGENTS

1. **Lovibond EDTA Tablets (for Copper interference) See Notes.**

2. **Lovibond Dechlor Tablets (for Chlorine interference) See Notes.**

THE STANDARD LOVIBOND COMPARATOR DISCS 3/102 and 3/151

Disc 3/102 covers the range 0 to 4mg./l. Zinc (Zn) in steps of 0.5mg./l. (using Copper/Zinc High Range tablets).

Disc 3/151 covers the range 0 to 1mg./l. Zinc (Zn) in steps of 0.1mg./l., omitting 0.7 and 0.9mg./l. (using Copper/Zinc Low Range tablets).

Both discs are used with 13.5mm./10ml. moulded cells.

METHOD

1. Rinse out two 13.5mm./10ml. moulded cells with sample, then fill to the 10ml. mark. Place one of the cells in the left-hand compartment of the Comparator.

2. Add one test tablet (High Range or Low Range as appropriate) to the other cell. Crush and mix to dissolve.

3. Leave for five minutes, then mix again to ensure complete dissolution of the indicator. Place the cell in the right-hand compartment of the Comparator.

4. Match the colour against the disc, using a standard source of white light such as the Lovibond Daylight 2000 Unit or failing this, North daylight (not fluorescent lighting).

5. This figure displayed in the bottom right-hand corner of the Comparator is the concentration of Zinc (Zn) in mg./l.

NOTES

1. For concentrations higher than the top step of the disc the sample should be diluted using deionised water and retested. The disc reading is multiplied by the dilution factor to give the zinc concentration of the undiluted sample.

2. The presence of copper will result in high readings as this reacts in the same manner as zinc. To correct for this interference, after taking the reading, add one EDTA tablet, crush and mix to dissolve. This destroys the zinc colour complex leaving only the copper. Take a second reading. The zinc concentration is obtained from the difference between the first and second readings.

3. If the sample contains significant amounts of chlorine, some bleaching of the colours of the zinc complex may be noted. This interference may be removed by addition of a Dechlor tablet to the water sample prior to addition of the zinc test tablet. The Dechlor tablet must be crushed and mixed to dissolve before the zinc tablet is added. The test is then carried out as per the method.

REVISION HISTORY

Date	Change Note	Issue
20/6/02	36/460	2