AMMONIA METHOD 1

Using Nessler's Reagent

INTRODUCTION

The following procedure covers the determination of Ammonia in water and waste water by reaction with Nessler's solution.

PRINCIPLE OF THE METHOD

Nessler's Reagent is a strongly alkaline solution of potassium mercury(II) iodide. In the presence of ammonia a brown colour is formed. The intensity of this colour, which is proportional to the ammonia concentration is measured by comparison with Lovibond permanent colour glass standards.

APPARATUS REQUIRED

Lovibond Nessleriser 2150
50ml./113mm. Nessler Tubes with anti-meniscus plungers
8" glass stirring rod
2ml bulb pipette or dropper
1ml pipette or dropper

THE STANDARD LOVIBOND NESSLERISER DISCS NAA, NAB, NAC AND NAD

NAA	range	1 - 10μg.	(0.02 - 0.2mg./l based on 50ml. sample)
NAB	range	10 - 26μg.	(0.2 - 0.52mg./l based on 50ml. sample)
NAC	range	28 - 60μg.	(0.56 - 1.2 mg./l. based on 50ml. sample)
NAD	range	60 - 100μg.	(1.2 - 2.0mg./l. based on 50ml. sample)

REAGENTS REQUIRED

1. **Nessler's Reagent** **CARE - POISON!** (made to Lovibond Specification)

2. **Ammonia Conditioning Powder** (for sea water analysis only)

METHOD

1. Fit the appropriate disc into the Nessleriser.

2. Fill two Nessler tubes to the 50ml.mark with the sample under test and put one tube in the left-hand compartment of the Nessleriser, fit a plunger if necessary.

3. Into the other tube measure 2ml. of Nessler's Reagent (using a mouth pipette is not recommended).

4. Mix thoroughly. With seawater & similar samples turbidity may occur on the addition of the Nessler's reagent. If this happens, the test should be repeated on a further 50ml. of sample, to which 1 heaped spoonful of Ammonia Conditioning Powder has been added and mixed before the addition of the 2ml. of Nessler's Reagent.

5. Fit the plunger if necessary and place the tube in the right-hand compartment of the Nessleriser. Allow to stand for 5 minutes (see Note 1).

6. Using the Daylight 2000 light source or North daylight (not fluorescent lighting) rotate the disc until the nearest colour match is obtained. Note the disc reading.

7. The ammonia concentration, as NH_3 = $\frac{\text{DISC READING}}{\text{SAMPLE VOLUME}}$ mg./l.

NOTES

1. With small quantities of Ammonia, from 1 to 5 micrograms on the disc, the colours develop slowly and so 15 minutes is allowed for colour development before a final reading is taken. With colours above 5 micrograms only 5 minutes is required.

2. If a colour is produced in the test which is darker than the top step on the disc a higher range disc should be used or the test should be repeated using a smaller volume of sample and the volume made up to 50ml. in the Nessler tube with deionised water. The reading should then be multiplied by the dilution factor.

3. To convert readings as NH_3 to N multiply the reading by 0.82.

REVISION HISTORY

Date	Change Note	Issue
07/02/02	36/460	2
14/03/05	CA243	3
18/12/08	JC 131	4