

AMMONIA METHOD 3

Using Lovibond Tablets

INTRODUCTION

The following procedure provides a simplified test for the determination of Ammonia in water and waste water.

PRINCIPLE OF THE METHOD

Ammonia reacts with certain chlorinated phenolic compounds to form a green/blue indophenol complex. For maximum stability and convenience in use, the reagents are combined together in the form of two tablets, using one of each per test. To ensure complete colour development, a catalyst is incorporated. The intensity of this colour, which is proportional to the Ammonia concentration, is measured by comparison against Lovibond permanent colour glass standards.

REAGENTS REQUIRED

1. Lovibond Ammonia No. 1 Tablets

2. Lovibond Ammonia No. 2 Tablets

for Seawater Samples (see Note 1 below):- 3. Ammonia Conditioning Powder

THE STANDARD LOVIBOND COMPARATOR DISCS 3/112, 3/113 and 3/125

Disc 3/112 covers the range 0 - 0.4mg./l. Ammonia as NH_4 in steps of 0.05mg./l. and is used with 40mm. cells.

Disc 3/113 covers the range 0 - 1.0mg./l. Ammonia as N in steps of 0.1mg./l., omitting the 0.7 and 0.9 steps. This disc is used with 13.5mm./10ml. moulded cells.

Disc 3/125 covers the range 0 - 10mg./l. Ammonia as N in steps of 1 mg/l omitting 7 and 9 and is used with 2.5mm. cells (a 10ml cell is used for sample preparation).

METHOD USING DISC 3/112

Ensure temperature of sample is at least 20°C (see note 1)

1. Into each of two 40mm. cells pour 20ml. of sample. One cell is then placed in the left-hand side of the Comparator.
2. To the other add one Ammonia No. 1 tablet and one Ammonia No. 2 tablet, crush and continue mixing until both tablets have fully dissolved.
3. Place the cell in the right-hand side of the Comparator and allow to stand for 10 minutes. (See note 2).
4. After standing for the required time match the colour against the standards by holding the Comparator against a source of white light such as the Lovibond Daylight 2000 unit, or against North daylight (not fluorescent lighting).
5. Rotate the disc until the nearest colour match is found; the figure displayed in the indicator window is the concentration, in mg./l., of Ammonia, as NH_4 , present in the sample.

For concentrations of Ammonia higher than 0.4mg./l., the sample may be suitably diluted with Ammonia-free deionised water the test repeated and the resulting reading multiplied by the dilution factor.

METHOD USING DISC 3/113

Ensure temperature of sample is at least 20°C (see note 1).

1. Into each of the 13.5mm./10ml. Moulded cells pour 10ml. of sample. One cell is then placed in the left-hand side of the Comparator.
2. To the other add one Ammonia No. 1 tablet and one Ammonia No. 2 tablet, crush and continue mixing until both tablets have fully dissolved. Place the cell in the right-hand side of the Comparator and allow to stand for 10 minutes. (See note 2).
3. After standing for the required time match the colour by holding the Comparator against a source of white light, such as the Lovibond Daylight 2000 Unit or against North daylight (not fluorescent lighting). Rotate the disc until the nearest colour match is obtained.
4. The figure displayed in the indicator window is the concentration, in mg./l., of Ammonia, as N, present in the sample.

METHOD USING DISC 3/125

1. The method for disc 3/113 is followed except that the blank is put into a 2.5mm. cell and after the 10 minute standing period some of the coloured test solution is poured into a second 2.5mm. cell, before being placed into the Comparator and matched against the disc.

NOTES

1. SEA WATER SAMPLES

Lovibond Ammonia Conditioning Reagent is required when testing seawater or brackish water samples to prevent precipitation of salts on addition of the tablets. The reagent is supplied in a special 'spoon-pack' to aid measuring out the powder.

Fill test cell with sample to the correct mark or volume. Add one level spoonful of conditioning reagent for a 10ml. sample or two level spoonfuls for a 20ml. sample. Mix to dissolve reagent then continue the test as for the normal method.

2. The temperature of the sample will affect colour development. At 10°C the colour development is only 50% complete after 20 minutes.
3. The following factors may be used for conversion of readings:-

from NH ₄ to NH ₃	x 0.94
from NH ₄ to N	x 0.78
from N to NH ₃	x 1.2
from N to NH ₄	x 1.3

REVISION HISTORY

Date	Change Note	Issue
11/02/02	36/460	2
13/03/05	CA243	3
04/01/06	JC05	4
05/01/09	JC132	5