

British Standard

Ammonia solution

Part 4. Method for determination of residue after heating at 850 °C

Solution d'ammoniaque

Partie 4. Méthode de dosage des résidus de chauffage à 850 °C

Ammoniaklösung

Teil 4. Verfahren zur Bestimmung des Rückstands nach Erwärmung auf 850 °C

NOTE. It is recommended that this Part be read in conjunction with the information on methods for sampling in BS 4651 : Part 0, published separately.

Foreword

This Part of BS 4651 has been prepared under the direction of the Chemicals Standards Committee and supersedes clause 4 of BS 4651 : 1971 which is withdrawn. This method is based on that described in clause 4 of BS 4651 : 1971.

NOTE. The term 'ammonia solution' is used to describe grades of product containing 25.0 % to 35.0 % (*m/m*) ammonia.

WARNING. Ammonia solution is a moderately strong alkali which exerts a local irritant action on the skin. Strong solutions which come into contact with the eyes, even for a short period, can cause serious and permanent damage.

Ingestion of ammonia solution will result in the destruction of the mucous lining of the mouth, throat and stomach.

Ammonia vapour is readily released from ammonia solution and is combustible in air between the concentrations of 16 % and 27 % (*V/V*) and may explode in confined spaces.

When sampling ammonia solution, take the precautions described in BS 4651 : Part 0.

This Part of BS 4651 describes a method of test only and should not be used or quoted as a specification defining limits of purity. Reference to this Part should indicate that the method of test used complies with BS 4651 : Part 4 : 1988.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

1 Scope

This Part of BS 4651 describes a gravimetric method for the determination of the residue after heating at 850 °C of ammonia solution for industrial use.

The method is applicable to solutions containing 25.0 % to 35.0 % (*m/m*) ammonia and with a residue after heating at 850 °C of not lower than 3 mg/kg.

NOTE. The publications referred to in this standard are listed on the inside back page.

2 Principle

Evaporation of a test portion in a tared platinum dish and weighing the residue after heating at 850 ± 50 °C.

3 Reagent

During the analysis use water complying with grade 3 of BS 3978.

4 Apparatus

4.1 General. Ordinary laboratory apparatus and the following.

4.2 One-mark volumetric flask, 500 mL, complying with BS 1792.

4.3 Platinum dish, approximately 75 mL capacity.

4.4 Electric muffle furnace, capable of being maintained at 850 ± 50 °C.

5 Procedure

5.1 Test portion

Fill the dry one-mark volumetric flask (4.2) to the mark with the test sample.

5.2 Determination

Weigh, to the nearest 0.0001 g, the platinum dish (4.3) previously heated at 850 ± 50 °C and cooled in a desiccator. Transfer some of the test portion (5.1) into the platinum dish and place on a boiling water bath in a well-ventilated fume cupboard.

Carefully evaporate the solution, gradually adding more solution until the whole test portion has been evaporated. Rinse the flask and its stopper with two 10 mL portions of water and evaporate these washings to dryness in the platinum dish.

Transfer the dish to the electric muffle furnace (4.4), maintained at 850 ± 50 °C, and heat for 30 min. Transfer the dish and residue to a desiccator and allow to cool to ambient temperature. Weigh to the nearest 0.0001 g.

6 Expression of results

The residue after heating at 850 °C, in mg/kg, is given by the following expression.

$$\frac{m_1 - m_0}{500 \times \rho} \times 10^6$$

where

m_0 is the mass of the empty platinum dish (in g);

m_1 is the mass of the platinum dish and residue (in g);

500 is the volume of the test portion (5.1) (in mL);

ρ is the density of the test sample, at 20 °C, determined in accordance with BS 4651 : Part 1 (in g/mL).

7 Test report

The test report shall include the following information:

- (a) a reference to this British Standard, i.e. BS 4651 : Part 4 : 1988;
- (b) a complete identification of the sample;
- (c) details of any unusual features noted during the determination;
- (d) the results expressed in accordance with clause 6;
- (e) any operation not included in this British Standard or regarded as optional.