

Ammonia solution

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

UDC 546.171.1 – 145.2:543.716

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been prepared under the direction of the Chemicals Standards Committee and supersedes clause 4 of BS 4651:1971 which is withdrawn.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 4651-0.

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 4651-1:1988.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

This British Standard, having been prepared under the direction of the Chemicals Standards Committee, was published under the authority of the Board of BSI and comes into effect on 31 August 1988

© BSI 11-1999

First published February 1971
First part revision as Part 4

The committees responsible for this British Standard are shown in Part 0.

The following BSI references relate to the work on this standard:
Committee reference CIC/21
Draft for comment 87/51189 DC

ISBN 0 580 16538 8

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 and 2, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

	Page
Foreword	Inside front cover
1 Scope	1
2 Principle	1
3 Reagent	1
4 Apparatus	1
5 Procedure	1
6 Expression of results	1
7 Test report	1
Publications referred to	Inside back cover

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 cover.

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.

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

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 4651-1 (in g/mL).

7 Test report

The test report shall include the following information:

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

Publications referred to

BS 1792, *Specification for one-mark volumetric flasks.*

BS 3978, *Specification for water for laboratory use.*

BS 4651, *Ammonia solution.*

BS 4651-0, *Methods for sampling.*

BS 4651-1, *Method for determination of density at 20 °C.*

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained.

If permission is granted, the terms may include royalty payments or a licensing agreement. Details and advice can be obtained from the Copyright Manager. Tel: 020 8996 7070.