BRITISH STANDARD

BS 4267-6: 1987

Ammonium nitrate —

Part 6: Method for determination of water content

NOTE It is recommended that this Part of BS 4267 be read in conjunction with the information in the "General introduction", published separately as BS 4267-0.

WARNING. Ammonium nitrate is a strong oxidizing agent. If necessary, break the test sample up by crushing rather than grinding.

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Foreword

This Part of BS 4267 has been prepared under the direction of the Chemicals Standards Committee. It supersedes clause **8** of BS 4267:1968, upon which it is based and which has been deleted by amendment.

This Part of BS 4267 is related to ISO 5791 *"Ammonium nitrate for industrial use — Determination of water content — Karl Fischer method"* published by the International Organization for Standardization (ISO).

This standard 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 is in accordance with BS 4267-6:1987.

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.

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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
30 September 1987

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 84/54870 DC

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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

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1 Scope

This Part of BS 4267 describes a method for determination of the water content of ammonium nitrate for industrial use. The method is applicable to products with a water content of not less than 0.05 % (m/m).

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Principle

Water is reacted in a test portion with a solution of iodine and sulphur dioxide in a pyridine-methanol mixture (Karl Fischer reagent), standardized previously by titration with a known mass of water. The end point of the reaction is detected by a direct electrometric method.

3 Reagents

During the analysis, use only reagents of recognized analytical grade and water complying with BS 3978.

The reagents described in **2.3** and **2.4** of BS 2511:1970 are required.

4 Apparatus

The apparatus described in **3.2** of BS 2511:1970 is required.

5 Procedure

5.1 Test portion

According to the expected water content weigh, to the nearest 0.01 g, a test portion requiring not more than 20 mL of the Karl Fischer reagent and, in any case, of mass not more than 10 g.

5.2 Standardization of the Karl Fischer reagent

Standardize the Karl Fischer reagent according to the procedure described in **3.4.1** and **3.4.2** of BS 2511:1970.

5.3 Determination

Add 50 mL of dry methanol to the reaction vessel. Pass a slow stream of dry nitrogen, sufficient to produce adequate agitation, through the reaction vessel, close the electrical circuit and titrate with the Karl Fischer reagent as before. Ignore this titration, and immediately add the test portion (**5.1**), quickly replace the stopper of the reaction vessel and once dissolved, titrate with the Karl Fischer reagent.

6 Expression of results

The water content, expressed as a percentage by mass of H_2O, is given by the following expression:

$$\frac{V \times F \times 100}{m \times 1000} = \frac{V \times F}{10 \times m}$$

where

V is the volume of the Karl Fischer reagent used in the determination (in mL);

F is the water equivalent of the Karl Fischer reagent (**5.2**) (in mg/mL);

m is the mass of the test portion (**5.1**) (in g).

7 Test report

The test report shall include the following information:

a) an identification of the sample;

b) a reference to this British Standard, i.e. BS 4267-6:1987;

c) the results expressed in accordance with clause **6**;

d) any unusual features noted during the determination;

e) any operation not included in this Part of BS 4267 or regarded as optional.

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Publications referred to

BS 2511, *Methods for the determination of water (Karl Fischer method).*
BS 3978, *Specification for water for laboratory use* .

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