

1996年8月7日

1984年7月20日

1974年8月22

British Standard

## Fertilizers

Part 4. Chemical analysis

Section 4.1 Determination of nitrogen

Subsection 4.1.1 Nitron gravimetric method for determination of nitrate nitrogen

[ISO title: Fertilizers – Determination of nitrate nitrogen content : Nitron gravimetric method]

Fertilisants

Partie 4. Analyse chimique

Section 4. Détermination d'azote

Sous-section 4.1.1 Méthode gravimétrique au nitron pour le dosage de l'azote nitrique

2000年9月28日

99年7月20

2002年6月3日

Düngemittel

Teil 4. Chemische Analyse

Abschnitt 4.1 Bestimmung des Stickstoffgehalts

Unterabschnitt 4.1.1 Bestimmung von Nitratstickstoff – Nitrongravimetrisches Verfahren

2004年6月3日

### National foreword

This British Standard has been prepared under the direction of the Chemicals Standards Committee in order to standardize terminology and labelling, sampling and methods of physical and chemical testing for fertilizers.

For some years the United Kingdom has participated in the standardization of methods of analysing fertilizers through Subcommittee 4, Chemical analysis, of Technical Committee 134, Fertilizers and soil conditioners, of the International Organization for Standardization (ISO). As international agreement is reached on the methods, it is proposed to publish them as Sections of BS 5551.

The standard is being published in four Parts, each Part being subdivided into Sections and, where appropriate, Subsections. The four Parts are:

- Part 1 Terminology and labelling
- Part 2 Sampling
- Part 3 Physical properties
- Part 4 Chemical analysis

Part 4 is to be divided into five Sections as follows:

- Section 4.1 Determination of nitrogen
- Section 4.2 Determination of phosphorus
- Section 4.3 Determination of potassium
- Section 4.4 Determination of water
- Section 4.5 Determination of other constituents

This Subsection of Part 4 is identical with ISO 4176-1981 'Fertilizers – Determination of nitrate nitrogen content – Nitron gravimetric method'.

**Terminology and conventions.** The text of the international standard has been approved as suitable for publication as a British Standard without deviation. Some terminology

and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

The comma has been used throughout as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'British Standard'.

**Cross-references.** The technical committee has reviewed the provisions of ISO 648 and ISO 1042, to which reference is made in clause 2, and has decided that they are acceptable for use in conjunction with this standard.

Related British Standards for ISO 648 and ISO 1042 are BS 1583 'One-mark pipettes' and BS 1792 'One-mark volumetric flasks' respectively.

**Additional information (1)** This British Standard specifies methods of test only and should not be used as a specification defining limits of purity. Reference to the standard should indicate that the methods of test used are in accordance with BS 5551 : Subsection 4.1.1.

(2) Until the international standard, referred to in the footnote to 7.1, on the sampling of fertilizers is available, guidance can be found in Part 1 'Introduction and general principles', and Part 4 'Sampling of solids', of BS 5309 'Methods for sampling chemical products'.

(3) With reference to clause 5, water complying with the requirements of BS 3978 'Water for laboratory use' is suitable.

2004年7月12日 ; 2005年7月12日



## 1 Scope and field of application

This International Standard specifies the nitron gravimetric method for the determination of the nitrate nitrogen content of fertilizers. It is suitable for use as a reference method and is applicable to all fertilizers.

NOTE — In the presence of a 9-fold mass excess of chloride, the result will be too high by 0,4 % of the result obtained.

## 2 References

ISO 648, *Laboratory glassware — One-mark pipettes.*

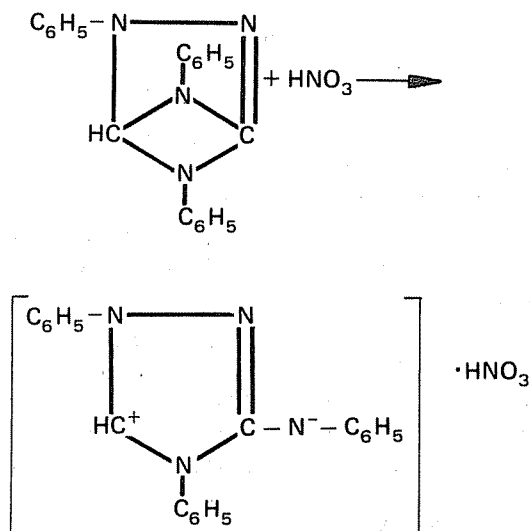
ISO 1042, *Laboratory glassware — One-mark volumetric flasks.*

## 3 Principle

Precipitation of nitrate ions in acid solution as a complex with nitron reagent.

Filtration of the precipitate, drying and weighing.

## 4 Reaction



## 5 Reagents

During the analysis, use only reagents of recognized analytical grade and distilled water or water of equivalent purity.

### 5.1 Acetic acid, 28,5 % (V/V) solution.

Dilute 285 ml of glacial acetic acid to 1 000 ml with water.

### 5.2 Sulphuric acid solution.

Dilute one volume of sulphuric acid ( $\rho_{20} = 1,84$  g/ml) with three volumes of water.

### 5.3 Nitron, 100 g/l solution.

Dissolve 10 g of nitron {(3,5,6-triphenyl-2,3,5,6-tetraazabicyclo [2.1.1]hex-1-ene)} in a mixture of 95 ml of water and 5 ml of glacial acetic acid. Filter the solution through a dry filter paper and store in a dark glass bottle.

New reagent shall be used to avoid a high result in the blank test.

## 6 Apparatus

Ordinary laboratory apparatus and

**6.1 One-mark volumetric flask**, of capacity 500 ml, complying with the requirements of ISO 1042, class A.

**6.2 One-mark pipettes**, of capacity in the range 5 to 20 ml, complying with the requirements of ISO 648, class A.

**6.3 Glass filter crucible**, of porosity in the range 4 to 16  $\mu\text{m}$ .

**6.4 Oven**, capable of being maintained at  $110 \pm 2$  °C.

**6.5 Mechanical flask shaker**, with a rotary or reciprocating action.

**6.6 Ice-bath**, capable of being maintained at a temperature of 0 to 0,5 °C.