
International Standard



7408

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Fertilizers — Determination of ammoniacal nitrogen content in the presence of other substances which release ammonia when treated with sodium hydroxide — Titrimetric method

Engrais — Dosage de l'azote ammoniacal en présence d'autres substances libérant de l'ammoniac sous l'effet d'hydroxyde de sodium — Méthode titrimétrique

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 7408 was developed by Technical Committee ISO/TC 134, *Fertilizers and soil conditioners*, and was circulated to the member bodies in July 1981.

It has been approved by the member bodies of the following countries :

Austria	Israel	Poland
Brazil	Italy	Portugal
China	Kenya	Romania
Czechoslovakia	Korea, Rep. of	South Africa, Rep. of
Egypt, Arab Rep. of	Mexico	Sri Lanka
France	Netherlands	United Kingdom
Germany, F.R.	New Zealand	USA
Hungary	Norway	USSR

The member body of the following country expressed disapproval of the document on technical grounds :

India

Fertilizers — Determination of ammoniacal nitrogen content in the presence of other substances which release ammonia when treated with sodium hydroxide — Titrimetric method

1 Scope and field of application

This International Standard specifies a method for the determination of the ammoniacal nitrogen content of fertilizers containing other substances, such as urea or urea-aldehyde condensates, which release ammonia in the presence of sodium hydroxide.

2 Principle

Entrainment, by means of a strong current of air, of the ammonia from a moderately alkaline test mixture at ambient temperature into standard volumetric sulfuric acid solution. Back-titration of the excess sulfuric acid with standard volumetric sodium hydroxide solution.

3 Reagents

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

3.1 Nonyl alcohol (nonanol).

3.2 Potassium carbonate, saturated solution at room temperature.

3.3 Sulfuric acid, approximately 590 g/l solution.

3.4 Sulfuric acid, standard volumetric solution, $c(\text{H}_2\text{SO}_4) = 0,25 \text{ mol/l.}^{1)}$

3.5 Sulfuric acid, standard volumetric solution, $c(\text{H}_2\text{SO}_4) = 0,05 \text{ mol/l.}^{2)}$

3.6 Sodium hydroxide, approximately 120 g/l solution.

3.7 Sodium hydroxide, standard volumetric solution, $c(\text{NaOH}) = 0,50 \text{ mol/l.}^{1)}$

3.8 Sodium hydroxide, standard volumetric solution, $c(\text{NaOH}) = 0,10 \text{ mol/l.}^{2)}$

3.9 Mixed indicator solution: screened ethanolic methyl red solution.

Mix 50 ml of a 2 g/l ethanolic methyl red solution with 50 ml of a 1 g/l ethanolic methylene blue solution.

The colour of this indicator changes from lilac in acid medium, via grey at pH 5,4, to green in alkaline medium.

3.10 Ammonium sulfate, dried to constant mass at 100 °C.

3.11 Urea.

4 Apparatus

Ordinary laboratory apparatus and

4.1 Entrainment apparatus.

The components of the apparatus may be connected by means of rubber bungs and tubing or by the use of ground glass joints.

Ground glass joints should be held by spring clamps to ensure that they are leak-tight. Rubber bungs and tubing should be replaced when they begin to perish or show signs of wear.

A suitable apparatus is illustrated in figures 1 and 2 and comprises the following components:

4.1.1 Double-necked bottle, of capacity 350 to 400 ml.

4.1.2 Inlet tube, fitted with a mushroom-shaped air distributor.

This distributor has an external diameter of 20 mm and has six openings in the rim, each $1 \pm 0,2 \text{ mm}$ in diameter.

NOTE — The shape of the distributor and the number of holes and their diameters are important in ensuring adequate distribution of air bubbles despite the strong flow of air.

1) Hitherto expressed as "0,50 N standard volumetric solution".

2) Hitherto expressed as "0,10 N standard volumetric solution".