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Ammonium nitrate for industrial use — Determination of free acidity — Volumetric method

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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.

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It was approved in November 1971 by the Member Bodies of the following countries :

Belgium	Ireland	Romania
Chile	Israel	South Africa, Rep. of
Czechoslovakia	Italy	Switzerland
Egypt, Arab Rep. of	Korea, Dem.P.Rep. of	Thailand
France	Morocco	United Kingdom
Germany	Netherlands	U.S.S.R.
Hungary	New Zealand	Yugoslavia
India	Portugal	

No Member Body expressed disapproval of the document.

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Ammonium nitrate for industrial use — Determination of free acidity — Volumetric method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a volumetric method for determining the free acidity, expressed as HNO_3, in ammonium nitrate for industrial use.

2 PRINCIPLE

Titration of free acidity with a standard sodium hydroxide solution in the presence of an indicator.

3 REAGENTS

3.1 Distilled water, or water of equivalent purity, neutral to the mixed indicator.

Add 1 ml of the indicator solution (3.3) to 1 000 ml of water and, if necessary, neutralize with the sodium hydroxide solution (3.2) or with a 0,1 N hydrochloric acid solution.

3.2 Sodium hydroxide, 0,1 N standard volumetric solution.

3.3 Mixed indicator, ethanolic solution.

Dissolve 0,1 g of methyl red in approximately 50 ml of 95 % (*V*/*V*) ethanol and then add 0,05 g of methylene blue. After the solid has completely dissolved, dilute to 100 ml with the same ethanol.

4 APPARATUS

Ordinary laboratory apparatus, and

4.1 Burette, graduated in 0,05 ml.

5 PROCEDURE

5.1 Test portion

Weigh, to the nearest 0,1 g, approximately 100 g of the test sample.

5.2 Preparation of the test solution

Place the test portion (5.1) in a 1 000 ml conical flask and dissolve in approximately 500 ml of the water (3.1). If the solution is turbid, filter out the impurities on a medium grade paper filter, collecting the filtrate in another 1 000 ml conical flask. Wash the filter and the first conical flask carefully with water, collecting the washing water in the second flask.

5.3 Titration

Titrate the solution (5.2) with the sodium hydroxide standard volumetric solution (3.2), using the burette (4.1), until the indicator changes colour, comparing with the unused 500 ml portion of the water (3.1).

6 EXPRESSION OF RESULTS

Free acidity, expressed as nitric acid (HNO_3), is given, as a percentage by mass, by the formula

$$\frac{V \times 0{,}006\,3 \times 100}{m} = \frac{V \times 0{,}63}{m}$$

where

V is the volume, in millilitres, of the sodium hydroxide standard volumetric solution (3.2) used for the titration;

0,006 3 is the mass, in grams, of nitric acid corresponding to 1 ml of 0,1 N sodium hydroxide solution;

m is the mass, in grams, of the test portion.

7 TEST REPORT

The test report shall include the following particulars :

a) the reference of the method used;

b) the results and the method of expression used;

c) any unusual features noted during the determination;

d) any operation not included in this International Standard, or regarded as optional.