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# INTERNATIONAL STANDARD



# 2516

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**Ammonium hydrogen carbonate for industrial use (including foodstuffs) – Determination of total alkalinity – Volumetric method**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

First edition – 1973-04-01

[ISO 2516:1973](#)

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UDC 661.523 : 543.241

Ref. No. ISO 2516-1973 (E)

**Descriptors :** ammonium compounds, carbonates, chemical analysis, alkalinity, volumetric analysis.

## 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 2516 was drawn up by Technical Committee ISO/TC 47, *Chemistry*, and circulated to the Member Bodies in August 1971.

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It has been approved by the Member Bodies of the following countries :

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Hungary	Portugal	U.S.S.R.

No Member Body expressed disapproval of the document.

# Ammonium hydrogen carbonate for industrial use (including foodstuffs) – Determination of total alkalinity – Volumetric method

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a volumetric method for the determination of the total alkalinity in ammonium hydrogen carbonate for industrial use (including foodstuffs).

## 2 PRINCIPLE

Acidification of a test solution by the addition of an excess of standard volumetric sulphuric acid solution.

Back titration with standard volumetric sodium hydroxide solution, in the presence of an indicator.

## 3 REAGENTS

Distilled water or water of equivalent purity, neutral to the mixed indicator (3.3), shall be used in the test.

### 3.1 Sulphuric acid, 0,5 N standard volumetric solution.

3.2 Sodium hydroxide, 0,5 N standard volumetric solution.

3.3 Mixed indicator, ethanolic solution (or any other indicator having an end point in the same pH range).

Dissolve 0,1 g of methyl red in 50 ml of 95 % (V/V) ethanol, add 0,05 g of methylene blue and, after dissolution, dilute to 100 ml with the same ethanol.

## 4 APPARATUS

Ordinary laboratory apparatus.

## 5 PROCEDURE

### 5.1 Test portion

Weigh, to the nearest 0,001 g, about 10 g of the test sample.

### 5.2 Determination

#### 5.2.1 Preparation of the test solution

Place the test portion (5.1) in a 500 ml one-mark volumetric flask, dissolve in water, dilute to the mark and mix.

#### 5.2.2 Titration

Place 50,0 ml of the test solution (5.2.1) in a 250 ml conical flask. Add 50,0 ml of the standard volumetric sulphuric acid solution (3.1), boil to expel the carbon dioxide, allow to cool, add 3 to 4 drops of the mixed indicator solution (3.3) and titrate with the standard volumetric sodium hydroxide solution (3.2) to the end point of the indicator.

## 6 EXPRESSION OF RESULTS

The total alkalinity, expressed as ammonia (NH<sub>3</sub>), is given, as a percentage by mass, by the formula :

$$\text{Alkalinity (\%)} = \frac{(V_0 - V_1) \times 0,0085 \times 10 \times 100}{m} = \frac{8,5 \times (V_0 - V_1)}{m}$$

where

$V_0$  is the volume, in millilitres, of the standard volumetric sulphuric acid solution (3.1) used;

$V_1$  is the volume, in millilitres, of the standard volumetric sodium hydroxide solution (3.2) used for the back titration;

$m$  is the mass, in grams, of the test portion;

0,0085 is the mass, in grams, of ammonia corresponding to 1 ml of 0,5 N sulphuric acid solution.

## 7 TEST REPORT

The test report shall include the following particulars :

- the reference of the method used;
- the results and the method of expression used;
- any unusual features noted during the determination;
- any operation not included in this International Standard, or regarded as optional.

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