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# International Standard 757/2

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# Acetone for industrial use — Methods of test — Part 2 : Determination of acidity to phenolphthalein — Titrimetric method

*Acétone à usage industriel — Méthodes d'essai — Partie 2 : Détermination de l'acidité à la phénolphtaléine — Méthode titrimétrique*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

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 757/2 was developed by Technical Committee ISO/TC 47, *Chemistry*, and was circulated to the member bodies in December 1980.

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

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|---|---|---|
| Australia | Hungary | Poland |
| Austria | India | Portugal |
| Belgium | Ireland | Romania |
| China | Italy | South Africa, Rep. of |
| Czechoslovakia | Korea, Dem.P.Rep. of | Switzerland |
| Egypt, Arab Rep. of | Korea, Rep. of | Thailand |
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The member body of the following country expressed disapproval of the document on technical grounds :

Netherlands

This International Standard has also been approved by the International Union of Pure and Applied Chemistry (IUPAC).

International Standards ISO 757/1 to ISO 757/5 cancel and replace ISO Recommendation R 757-1968, of which they constitute a technical revision.



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INTERNATIONAL STANDARD ISO 757/2-1982 (E)

# Acetone for industrial use — Methods of test — Part 2 : Determination of acidity to phenolphthalein — Titrimetric method

## 1 Scope and field of application

This part of ISO 757 specifies a titrimetric method for the determination of the acidity to phenolphthalein of acetone for industrial use.

The method is applicable to products having acidities, expressed as acetic acid ($CH_3COOH$), equal to or greater than 0,000 6 % (*m/m*).

This document should be read in conjunction with ISO 757/1 (see the annex).

## 2 Principle

Dilution of a test portion with carbon dioxide-free water.

Titration of the test solution, if acid, with standard volumetric sodium hydroxide solution, using phenolphthalein as indicator.

## 3 Reagents

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

**3.1 Water,** carbon dioxide-free.

Boil distilled water and allow it to cool in a flask fitted with a stopper carrying a soda-lime guard tube.

**3.2 Sodium hydroxide,** standard volumetric solution, $c$(NaOH) = 0,1 mol/l.

**3.3 Phenolphthalein,** 5 g/l ethanolic solution.

Dissolve 0,5 g of phenolphthalein in 100 ml of 95 % (*V/V*) ethanol and add the sodium hydroxide solution (3.2) until a pale pink coloration is obtained.

## 4 Apparatus

Ordinary laboratory apparatus, and

**4.1 Conical flask,** of capacity 250 ml, of borosilicate glass, fitted with a ground glass stopper carrying a soda-lime guard tube.

**4.2 Burette,** of capacity 10 ml, graduated in 0,02 ml divisions.

## 5 Procedure

### 5.1 Test portion

Take 100 ± 0,1 ml of the laboratory sample.

### 5.2 Determination

Place 80 ml of the water (3.1) in the conical flask (4.1), add 0,5 ml of the phenolphthalein solution (3.3) and make faintly pink by the addition of a few drops of the sodium hydroxide solution (3.2).

Add the test portion (5.1) and a further 0,5 ml of the phenolphthalein solution (3.3). If the solution is acid (colourless), titrate it with the sodium hydroxide solution (3.2), stoppering the flask and swirling its contents after each addition, until a pink coloration, persisting for about 15 s, is obtained.

## 6 Expression of results

The acidity, expressed as acetic acid ($CH_3COOH$) as a percentage by mass, is given by the formula

$$\frac{0{,}006 \times V_1}{\varrho}$$

where

$V_1$ is the volume, in millilitres, of the sodium hydroxide solution (3.2) used for the determination;

$\varrho$ is the density, in grams per millilitre, of the sample at 20 °C (see ISO 757/1, clause 4);

0,006 is the mass, in grams, of acetic acid corresponding to 1,00 ml of sodium hydroxide solution, $c$(NaOH) = 0,100 mol/l.

NOTE — If the concentration of the standard volumetric solution used is not exactly as specified in the list of reagents, an appropriate correction should be made.

# Annex

## ISO publications relating to acetone for industrial use

ISO 757/1 — General.

ISO 757/2 — Determination of acidity to phenolphthalein — Titrimetric method.

ISO 757/3 — Test for miscibility with water.

ISO 757/4 — Permanganate test (limit test).

ISO 757/5 — Control test with Agulhon's reagent.