
International Standard



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Acetone for industrial use — Methods of test — Part 4 : Determination of permanganate time

Acétone à usage industriel — Méthodes d'essai — Partie 4 : Détermination du temps de permanganate

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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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No member body expressed disapproval of the document.

Acetone for industrial use — Methods of test — Part 4 : Determination of permanganate time

1 Scope and field of application

This part of ISO 757 specifies a method for the determination of the permanganate time of acetone for industrial use.

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

2 Definition

For the purpose of this part of ISO 757, the following definition applies.

permanganate time : The number of minutes required, after adding 2 ml of 0,2 g/l potassium permanganate solution to 50 ml of the sample, for the colour to match that of a colour standard.

3 Principle

Addition to a test portion, under specified conditions, of potassium permanganate solution. Determination of the time taken for the colour of this test solution to match that of a cobalt(II) chloride and uranyl nitrate colour standard.

4 Reagents

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

4.1 Potassium permanganate, 0,2 g/l solution.

Use water previously boiled for 30 min with sufficient dilute potassium permanganate solution to give a stable faint pink coloration. Cool the water to ambient temperature before preparation of the solution.

Prepare this solution immediately before use and protect it from strong daylight.

4.2 Cobalt(II) chloride uranyl nitrate, colour standard.

To 5 ml of a 50 g/l of cobalt(II) chloride hexahydrate ($\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$), add 7 ml of a 40 g/l solution of uranyl nitrate hexahydrate [$\text{UO}_2(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$], and dilute with water to 50 ml.

Prepare this solution on the day of use.

5 Apparatus

NOTE — Clean the glassware used so as to avoid any risk of contamination.

Ordinary laboratory apparatus, and

5.1 Water bath, capable of being controlled at $25 \pm 0,2$ °C.

5.2 Two matched cylinders, of capacity 100 ml, of colourless transparent glass, with a mark at 50 ml and fitted with ground glass stoppers.

5.3 Burette, of capacity 10 ml, graduated in 0,05 ml divisions.

6 Procedure

6.1 Test portion

Carry out the test as soon as possible after receipt of the sample. (Instructions for the storage of the sample are specified in ISO 757/1.)

Rinse one of the cylinders (5.2), first with 15 to 20 ml of hydrochloric acid, ρ approximately 1,19 g/ml, about 38 % (*m/m*) solution, then six times with tap water, twice with distilled water and finally with some of the laboratory sample.

Immediately fill the cylinder to the mark with more of the laboratory sample at a temperature of about 25 °C.

6.2 Determination

Rinse the second cylinder (6.2) as specified in the second paragraph of sub-clause (6.1) but omitting last rinse with the laboratory sample.

Fill the second cylinder to the mark with the colour standard (4.2).

Place the cylinder containing the test portion (6.1) in the water bath (5.1), controlled at $25 \pm 0,2$ °C, so that the water level in the bath is approximately 25 mm below the neck of the cylinder. After 15 min, remove the cylinder from the water bath and, using the burette (5.3), add 2.0 ml of the potassium permanganate solution (4.1). Note the time. Immediately stopper the cylinder, shake, and replace in the water bath.

Remove the cylinder from the water bath, from time to time and compare the colour, viewing vertically downwards against a white background, with the colour standard. Towards the end of the determination, compare the colour at intervals of 1 min. Avoid exposing the test solution to strong daylight.

Note the time when the colour of the test solution matches that of the colour standard.

7 Expression of results

Report the time, in minutes, from the addition of the potassium permanganate solution, for the colour of the test solution to match that of the colour standard.

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Annex

ISO publications relating to acetone for industrial use

<https://standards.iteh.ai/catalog/standards/sist/970de478-f24d-4c35-91c3-53ebf23e9396/iso-757-4-1983>

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 — Determination of permanganate time.

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