BRITISH STANDARD

BS 6392-1: 1983

Incorporating Amendment No. 1

Testing of ethanol for industrial use —

Part 1: Method for detection of alkalinity or determination of acidity to phenolphthalein

NOTE It is recommended that this Part be read in conjunction with the information given in the "*General introduction*" published separately as BS 6392-0.

Confirmed January 2011

UDC 661.722:543.241

Foreword

This Part of BS 6392 is technically equivalent to ISO 1388 "*Ethanol for industrial use — Methods of test*" Part 2 "*Detection of alkalinity or determination of acidity to phenolphthalein*", published in 1981 by the International Organization for Standardization (ISO).

For ease of production, the text of ISO 1388-2:1981, with the omission of the Annex, has been used for this British Standard. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

This standard describes a method only and should not be used as a specification defining limits of purity. Reference to the standard should indicate that the method of test used is in accordance with BS 6392-1.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Chemicals Standards Committee, was published under the authority of the Board of BSI and comes into effect on 31 August 1983

The Committees responsible for this British Standard are shown in Part 0.
The following BSI references relate to the work on this standard:
Committee reference CIC/4
Draft for comment 80/51209 DC

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 and 2, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date of issue	Comments
4937	March 1986	Indicated by a sideline in the margin

Contents

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1 Scope and field of application

This Part of BS 6392 describes a method for the detection of alkalinity and, if appropriate, the subsequent determination of acidity of ethanol for industrial use.

The method is applicable to products having acidities, expressed as acetic acid (CH_3COOH), greater than or equal to 0,000 8 % (*m/m*).

NOTE The title of the publication referred to in this standard is given on the inside back cover.

2 Principle

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

Checking whether the test solution is alkaline or acid to phenolphthalein, and, if appropriate, determination of the acidity by titration with standard volumetric sodium hydroxide solution.

3 Reagents

During the analysis, use only reagents of recognized analytical grade and distilled water or water of equivalent purity, carbon dioxide-free, recently prepared.

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 borosilicate glass, of capacity 500 ml, fitted with a ground glass stopper carrying a soda-lime guard-tube.

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

5 Procedure

5.1 Test portion

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

5.2 Determination

Place 100 ml of the water (**3.1**) in the conical flask (**4.1**), add 0,5 ml of the phenolphthalein solution (**3.3**) and, if necessary, restore the pale pink coloration 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**) and note whether the solution is alkaline; if acid, titrate the test solution 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. Shake the contents of the flask, with the stopper in position, after each addition of sodium hydroxide solution.

6 Expression of results

6.1 Alkaline products

Indicate whether the product is alkaline to phenolphthalein.

6.2 Acidic products

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

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

where

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

ϱ is the density, in grams per millilitre, of the sample at 20 °C (see BS 4522);

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

NOTE If the standard volumetric solution used is not of the exact concentration specified in the list of reagents, an appropriate correction should be applied.

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Publication referred to

BS 4522, *Method for the determination of density of liquids at 20 °C.*

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