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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 394.2-2025

Replacing GB/T 394.2-2008

General methods of analysis for ethanol

酒精通用分析方法

Issued on: December 2, 2025 **Implemented on: January 1, 2027**

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Standardization Administration of the PRC

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 2 of GB/T 394.GB/T 394 has the following parts published.

1.Fermented Industrial Alcohol;

2.General analytical methods for alcohol. This document replaces GB/T 394.2-2008 "General Analytical Methods for Alcohol". Compared with GB/T 394.2-2008, the main differences are structural adjustments and... Aside from editorial changes, the main technical changes are as follows:

a) The method for testing alcohol content has been changed (see Chapter 6, Chapter 5 of the.2008 edition);

b) The experimental procedure for oxidation time has been modified (see 8.4,

7.4 in the.2008 edition);

c) The test method for methanol has been changed (see Chapter 11, Chapter 10 in

the.2008 edition);

d) The test methods for heavy metals and cyanides have been removed (see Chapters 14 and 15 of the.2008 edition);

e) The appendix related to "Conversion Table of Alcohol Meter Temperature (T) and Alcohol Content (ALC) (Volume Fraction) (20°C)" has been deleted (see.2008 edition). Appendix A). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China National Light Industry Council. This document is under the jurisdiction of the National Technical Committee on Standardization of Brewing (SAC/TC471). This document was drafted by: China National Research Institute of Food Fermentation Industries Co., Ltd., Zhejiang Hongzheng Testing Co., Ltd., and Guangdong Provincial Research Institute of Food Industry. Research Institute Co., Ltd., Zhongrong Technology Co., Ltd., COFCO Biotechnology Co., Ltd., Minquan County Product Quality Inspection and Testing Center, Sichuan Provincial Institute for Food Inspection and Testing The main drafters of this document are. Meng Zhen, Xu Shuangyang, Wang Dingkun, Dai Shumei, Lu Hongyu, Guo Xinguang, Niu Xinpei, Wu Peiwen, and Song Lianfang. Liu Yiqi. The release history of this document and the document it replaces is as follows:

---First published in.1994 as GB/T 394.2-1994, and revised for the first time in.2008;

---This is the second revision.

Industrial alcohol is mainly produced through fermentation and chemical synthesis. Fermentation-based industrial alcohol is preferred due to its environmental friendliness and low energy consumption. With low impurities, it is widely used in chemical, new energy and other fields. GB/T 394 aims to standardize the requirements and analytical methods for the production, inspection, and sale of industrial alcohol in the fermentation industry. GB/T 394 is proposed to consist of two parts.

1.Industrial Alcohol from Fermentation. The purpose is to standardize the requirements for industrial alcohol from fermentation.

1 Scope

GB/T 394.2-2025 is the Chinese national standard covering the analysis of industrial ethanol - the strength, the acidity, the aldehydes and esters, the methanol and the fusel oils, and the oxidation time that is the classical measure of purity. It replaces GB/T 394.2-2008 and takes effect on 1 January 2027, with the product standard GB/T 394.1-2026. It was issued on 2 December 2025 and takes effect on 1 January 2027, replacing GB/T 394.2-2008. The document is under the responsibility of the China National Light Industry Council. This page is published from the official record of the 2025 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document establishes the general rules for the analysis of edible alcohol and fermentation industrial alcohol, and describes the test methods for alcohol-related parameters. This document applies to the analysis of edible alcohol and fermented industrial alcohol.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 601 Preparation of Standard Titration Solutions for Chemical Reagents

GB/T 603 Preparation of reagents and products used in chemical reagent test methods

GB 5009.225 National Food Safety Standard. Determination of Ethanol Concentration in Wines and Edible Alcohol

GB 5009.266 National Food Safety Standard - Determination of Methanol in Food

GB/T 6682 Specifications and test methods for water used in analytical laboratories

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4 General Rules

4.1 The nouns, terms, and units of measurement used shall comply with the provisions of relevant national standards.

4.2 All analytical instruments used (such as analytical balances, spectrophotometers, etc.) should be calibrated periodically; density flasks, pipettes, volumetric flasks, etc. used should also be calibrated. Glass measuring instruments shall be calibrated in accordance with relevant verification procedures.

4.3 The colorimetric tubes used should be a complete set, and their glass material and color should be consistent. Ordinary glassware should be cleaned with detergent or chromic acid cleaning solution; glassware that has been cleaned with high-manganese... For containers containing potassium oxalate, soak them in oxalic acid and then rinse them thoroughly with water.

4.4 Unless otherwise specified, the water used shall conform to GB/T 6682.Unless otherwise specified, all reagents used shall be of the specified specifications. Analytical purity (AR).

4.5 Unless otherwise stated, "solution" refers to an aqueous solution.

4.6 All reference ethanol used was 95% (v/v) ethanol, with the following limits for major impurities. methanol less than 2 mg/L; n-propanol Less than 2 mg/L; higher alcohols (isobutanol and isoamyl alcohol) less than 1 mg/L; can be detected by gas chromatography. Aldehydes less than 1 mg/L can be detected by iodometric titration. For tests involving esters less than 1 mg/L, the saponification method can be used. When testing premium or super neutral edible alcohol, a reagent sample should be selected where all tested components are detectable. The standard ethanol was used as the solvent.

4.7 For limit determination (direct comparison method), the colorimetric standard (referred to as "color standard") corresponding to the limit index of that level should be directly taken and compared with the sample. Test. Visual colorimetry is performed by visually comparing the sample with an equal volume of color standard solution against a white background, along the axial direction.