



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 678-2023

Chemical reagent - Ethanol

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 Directives

for Standardization - Part 1. Rules for the Structure and Drafting of Standardizing Documents.

This document serves as a replacement of GB/T 678-2002 Chemical Reagent - Ethanol. In comparison with GB/T 678-2002, apart from structural adjustments and editorial modifications,

the main technical changes are as follows.

---The liquid-phase chromatography purity grade, technical requirements and determination methods are added (see Chapter 5 and Chapter 6);

---The technical requirements for ethanol are modified, and the technical requirement for top-grade purity is adjusted from "≥ 99.8%" to "≥ 99.9%" (see Chapter 5; Chapter 4 of Version 2002);

---The unit of acidity and alkalinity is adjusted from "mmol/100 g" to "mmol/g" (see Chapter 5; Chapter 4 of Version 2002);

---The technical requirements for moisture are modified, and the technical requirement for top-grade purity is adjusted from "≤ 0.2%" to "≤ 0.1%" (see Chapter 5; Chapter 4 of

Version 2002);

---The technical requirements for methanol are modified, and the technical requirement for top-grade purity is adjusted from "≥ 0.02%" to "≥ 0.005%" (see Chapter 5; Chapter

4 of Version 2002);

---The technical requirements and determination methods for n-propanol are added (see Chapter 5 and 6.11);

---The determination methods for ethanol, methanol and isopropanol are modified (see 6.2,

6.10 and 6.11; 5.1, 5.8 and 5.9 of Version 2002);

---The determination method for density using a vibrating-type liquid density meter is added (see 6.4);

---The packaging and marking are modified (see Chapter 8; Chapter 7 of Version 2002).

This document was drafted with reference to ISO 6353-2:1983 Reagents for Chemical Analysis

- Part 2. Specifications - First Series. The degree of consistency is non-equivalent.

Please be noted that certain content of this document may involve patents. The institution issuing this document does not undertake the responsibility of identifying these patents.

This document was proposed by China Petroleum and Chemical Industry Federation (CPCIF).

This document shall be under the jurisdiction of Chemical Reagent Subcommittee of National

Technical Committee 63 on Chemistry of Standardization Administration of China (SAC/TC 63/SC 3).

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Co., Ltd.; Taicang Xintai Alcohol Co., Ltd.; Changshu Binjiang Chemical Co., Ltd.; Zhejiang Environmental Testing Technology Co., Ltd.

1 Scope

This document specifies the characters, technical requirements, test methods, inspection rules,

packaging and marking of the chemical reagent ethanol (anhydrous ethanol).

This document is applicable to the inspection of the chemical reagent ethanol (anhydrous ethanol).

NOTE. the rational formula of the chemical reagent ethanol (anhydrous ethanol) is $\text{CH}_3\text{CH}_2\text{OH}$,

the relative molecular mass is 46.07 (in accordance with the 2022 international relative atomic mass), and the CAS No. is 64-17-5.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only

versions with a specified date are applicable to this document. In terms of references without a

specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 601 Chemical Reagent - Preparations of Standard Volumetric Solutions

GB/T 602 Chemical Reagent - Preparations of Standard Solutions for Impurity

GB/T 603 Chemical Reagent - Preparations of Reagent Solutions for Use in Test Methods

GB/T 605 Chemical Reagent - General Method for the Measurement of Color

GB/T 606 Chemical Reagent - General Method for the Determination of Water - Karl Fischer

Method

GB/T 611-2021 Chemical Reagent - General Method for the Determination of Density

GB/T 6682 Water for Analytical Laboratory Use - Specification and Test Methods

GB/T 9721-2006 Chemical Reagent - General Rules for the Molecular Absorption Spectrophotometry

3 Terms and Definitions

This document does not have terms and definitions that need to be defined.

4 Characters

Ethanol (anhydrous ethanol) is a colorless and transparent liquid that is easily volatile. It can

be mixed with water, chloroform and ether, etc., and can easily absorb water.

5 Technical Requirements

The chemical requirements for ethanol (anhydrous ethanol) are shown in Table 1.

6.1 General Rules

Unless it is otherwise specified in this Chapter, the standard titration solutions, standard solutions, preparations and products used are prepared in accordance with the stipulations of

GB/T 601, GB/T 602 and GB/T 603. The water used for the tests shall comply with Grade-3 water specifications in GB/T 6682. The samples are weighed to an accuracy of 0.01 g or measured-taken to an accuracy of 0.1 mL. All solutions expressed in percentage (%) are mass

fraction (w).

6.2.1 Reagents, materials and instruments

Shall comply with the stipulations of Chapter 5 and Chapter 6 in GB/T 9722-2006.

6.2.3 Quantitative method

In accordance with the stipulations of 9.2 in GB/T 9722-2006, conduct the determination.

Take the arithmetic mean of two parallel determination results as the determination result. The

absolute difference between two parallel determination results shall be not greater than 0.1%.

6.3 Chroma

In accordance with the stipulations of GB/T 605, conduct the determination.