



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

GB 1886.56-2015

**National Food Safety Standard -- Food Additives - 1-butanol
(n-butanol)**

食品安全国家标准 食品添加剂 1-丁醇（正丁醇）

(English Translation)

Issued on: September 22, 2015

Implemented on: March 22, 2016

**Issued by: National Health and Family Planning Commission of the
People's Republic of China**

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1 Scope

This standard applies to fermentation and synthesis of food additives was 1-butanol (n-butanol).

2 Molecular formula, relative molecular mass and structural formula

Formula 2.1

C₄H₁₀O

2.2 Formula

CH₃-CH₂-CH₂-CH₂-OH

2.3 Relative molecular mass

74.12 (according to 2007 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 Sensory requirements

Project requires test methods Color colorless State transparent liquid, viscous microstrip with characteristic odor odor Take appropriate sample in a clean, dry colorimetric tube, Natural light, visually observe the color and status, olfactory their odor

3.2 Physical and Chemical Indicators

Physical and chemical indicators should be consistent with the provisions of Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Butanol content, w /% ≥ 99.5 GB/T 6027 Water, w /% ≤ 0.1 GB 5009.3 in the Karl Fischer method TABLE 2 (cont.) Item Index Test Method Boiling range/ $^{\circ}\text{C}$ 116 ~ 118 GB/T 615 Evaporation residue/(mg/mL) ≤ 2 GB/T 6324.2 Acidity (acetic acid), w /% ≤ 0.003 Appendix A A.4 Aldehydes (acetaldehyde dollars), w /% ≤ 0.05 Appendix A A.5 the total amount of volatile impurities, w /% ≤ 0.5 GB/T 6027 Lead (Pb)/(mg/kg) ≤ 2.0 GB 5009.12 Appendix A Testing method A.1 Warning Some test procedures prescribed test method can lead to dangerous situations. The operator shall take appropriate safety and health practices.

A.2 General Provisions Unless otherwise indicated in the analysis using only recognized as analytical reagents and GB/T 6682 stipulated three water. Test Methods the standard titration solution, impurity measurement standard solution, preparations and products, did not indicate when the other requirements, according to GB/T 601, GB/T 602 Preparation and provisions GB/T 603; and the solution, unless otherwise indicated, are the solution.

A.3 Identification Test A.3.1 solubility Dissolved in water, slightly soluble in ethanol and ether.

A.3.2 Density

According to the provisions of GB/T 4472 were measured. Density at 20 $^{\circ}\text{C}$ should be 0.809g/cm³ ~ 0.811g/cm³.

A.4 acidity (based on acetic acid) Determination A.4.1 Reagents and materials A.4.1.1 ethanol potassium hydroxide standard titration solution. c (KOH) = 0.02mol/L.

A.4.1.2 phenolphthalein indicator solution. 10g/L.

A.4.2 Analysis step

Weigh about 60g sample (about 74mL), to the nearest 0.001g, add 2 drops to 3 drops of phenolphthalein indicator solution, titration with potassium hydroxide in ethanol standard Titration solution until the solution was pink, holding 15s do not fade is the end.

A.4.3 Calculation Results Acidity (acetic acid) mass fraction w₁, according to equation (A.1) Calculated.

$$V_1 \times c_1 \times M$$

$$1000 \times m \times$$

$$100\% \text{ (A.1)}$$

Where.

V1 --- standard titration volume of potassium hydroxide in ethanol solution in milliliters (mL);

c1 --- ethanol concentration of potassium hydroxide standard titration solution, expressed in moles per liter (mol/L);

--- The M acetic acid molar mass in grams per mole (g/mol), [M (CH₃COOH) = 60.05];

1000 --- conversion factor;

M --- the quality of the sample, in grams (g).

The arithmetic average of the results of two parallel determination for reporting results. Two parallel determination results is not more than the absolute difference between the two measured 20% of the arithmetic mean value.

A.5 aldehydes (acetaldehyde meter) measurement A.5.1 Reagents and materials A.5.1.1 aldehyde-free ethanol.

A.5.1.2 Basic Fuchsin - sulfite solution.

A.5.1.3 Determination of acetaldehyde impurity standard solution. 1mg/mL.

A.5.2 Analysis step

6.2mL sample weighed, placed in colorimetric tube, add 6mL aldehyde-free ethanol and 6mL water, shaken, cooled to 15 °C ~ 20 °C, plus 2mL Basic Fuchsin - sulfite solution, at 15 °C ~ 20 °C placed 15min, not deep in the red standard, namely acetaldehyde content is in compliance Standard requirements.

Standard simultaneously take 9.7mL and 2.5mL water impurity acetaldehyde standard solution measurement, add 6mL aldehyde-free ethanol, shake, cooling to 15 °C ~ 20 °C, add 2mL basic fuchsin - sulfite solution, at 15 °C ~ 20 °C placed 15min.